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'It's Important to Know In Time'

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The Newspaper of the Industry

# Air Conditioning & REFRIGERATION NEWS

AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★

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'Written to be Read on Arrival'

Issued Every Wednesday at Detroit, Michigan

JAN. 21, 1942

Vol. 35, No. 3, Serial No. 670
Established 1926.

## Rubber V-Belts By 'Reclaiming' Process Likely

### *Large Number Needed To Drive All Kinds Of Appliance Units*

AKRON, Ohio—America's refrigerators, washing machines, oil burners, and other appliances, which last year required millions of replacement V-belts, will not break down for lack of new belts if military requirements will permit use of reclaimed rubber for this purpose, according to B. F. Goodrich Co. engineers.

If results of OPM's study of the overall rubber situation permit, Goodrich will market "Victory" V-belts made entirely of reclaim rubber which will give 80% of customary service without drawing on the nation's crude rubber stockpile, declares William S. Richardson, general manager of the industrial products division of the company.

"This development would contribute toward maintenance of civilian morale by permitting continued operation of automobiles and appliances, while conserving rubber vitally needed for war equipment," Mr. Richardson said.

Last year 2,325,000 pounds of natural rubber went into replacement V-belts for automobiles, and 2,260,000 pounds into replacements for domestic appliances, he added, emphasizing that the government's ruling limiting the use of natural rubber does not provide for the manufacture of any V-belts, either for original equipment or replacement purposes.

"Translated into tonnage, this is a saving of 2,500 tons of vitally needed crude rubber—or about the equiva-

*(Concluded on Page 4, Column 2)*

## *ASHVE Conclave Opens Monday In Philadelphia*

PHILADELPHIA—A number of subjects of interest to air conditioning men have been scheduled in the technical program arranged for the forty-eighth annual meeting of American Society of Heating & Ventilating Engineers, to be held Jan. 25 to 29, inclusive in the Bellevue-Stratford hotel here.

"Use of Cold Accumulators in the Air Conditioning Field" will be discussed by R. W. Evans and C. J. Otterholm at the technical session scheduled for 8 p.m. Jan. 26. At the same session, the A.S.H.V.E. advisory committee on sensations of comfort will report on "Comfort With Summer Air Conditioning," and W. A. Hinton and Albert F. Poor will outline "The Effect of Attic Fan Operation on the Cooling of a Structure."

At the session set for 2 p.m. Jan.

*(Concluded on Page 4, Column 4)*

## *Ward Catalog Reveals Appliance Line Cut*

CHICAGO—Sharp reduction of refrigerator, washing machine, and vacuum cleaner lines as compared with 1941 is revealed in the spring and summer catalog just issued by Montgomery Ward & Co.

Ward's lowest price electric refrigerator in the new catalog is listed at $127.95 for a 7-foot model. Sears' lowest-priced 1942 refrigerator is a 6.5-foot model at $119.95.

## Refrigerators For Defense Homes To Be Bought 'Direct'

WASHINGTON, D. C.—Refrigerators and nearly all other types of household equipment required for defense housing projects built under Federal Works Agency supervision will be bought in the future through the Procurement Division of the United States Treasury on a "mass purchasing" basis in order to expedite delivery and distribution, and for purposes of economy, it was announced recently by Assistant Federal Works Administrator Baird Snyder, III, acting for Administrator Philip B. Fleming.

On the basis of expenditures for equipment in earlier defense housing programs, the mass purchasing procedure promises to save several million dollars in the cost of equipment, needed for a proposed defense housing program of 120,000 dwelling units, Mr. Snyder said.

The plan will also apply to the purchase of equipment for the 42,000 demountable homes authorized under the special fund of $153,000,000 allocated to the Federal Works Agency by the President for emergency shelter in defense areas.

*(Concluded on Page 4, Column 2)*

## New Order Tightens Controls on Chrome

WASHINGTON, D. C.—Further tightening of control over chromium was announced last week by the Director of Priorities with the issuance of an amendment to Order M-18-a, prohibiting any person from melting more than 2 tons of ferrochrome in any one month without specific direction from the Director of Priorities.

Other provisions of the order are unchanged.

Purpose of the amendment is to prevent using up inventories of ferrochrome to fill less essential rated orders for chrome steel.

Together with Order M-21-a, the chrome steel order, this regulation is designed to limit chrome steel to vital military needs.

## Virginia Dealers Set Sales Records In '41; Drop In December

ALEXANDRIA, Va.—Led by electric refrigerators with 14,355 units, sales of major appliances in the territory of Virginia Public Service Co. beat past records in all departments during 1941, according to dealer reports. Refrigerator sales in 1940 totaled 12,763 units.

Electric range sales hit 2,269 units, against 1,826 in 1940, and water heaters topped all appliances in percentage gain, with 883 units as compared with 599 in 1940, an increase of 47%.

Refrigerators fell below 1940 totals during December, however, sales showing 369 units as against 472 in the same month of the preceding year. Commercial refrigerator sales dropped to 4 units, against 16 in December, 1940, and range sales to 105, against 159 in the preceding year. Water heater sales totaled 51, one above the 1940 mark for the month. Washer sales were 418 and ironer sales 22, against marks of 509 and 22 units, respectively, in December, 1940.

| Appliance | 1941 | 1940 |
|---|---|---|
| Refrigerators ..... | 14,355 | 12,763 |
| Ranges ..... | 2,269 | 1,826 |
| Water Heaters ..... | 883 | 599 |

## *Inquiry Shows Cadmium Plated Trays Caused Food Poisoning*

### Federal Agencies Advise Against Its Use In Refrigerator Trays and Containers

WASHINGTON, D. C.—Because of outbreaks in food poisoning, the Federal Security Agency has advised manufacturers against using cadmium, a substitute for aluminum, in plating cooking utensils and refrigerator containers, Federal Security Administrator Paul V. McNutt announced last week.

Mr. McNutt said the Food and Drug Administration and the United States Public Health Service, following an investigation of outbreaks, have found they were due to cadmium, which they said contained a poisonous substance causing severe illness when taken in food even in small amounts.

The Federal Security Agency, Mr. McNutt said, has conferred with representatives of the plating industry, and it is probable that this industry will cease using cadmium for food container purposes. At the same time the OPM has stated that it would not release cadmium for this use.

The administrator said that both the Food and Drug Administration and the Public Health Service have reported that five of the outbreaks, involving at least 50 persons, were traced to the consumption of frozen food which had either been chilled in refrigerators equipped with cadmium-plated ice trays or served in cadmium-plated metal containers.

Symptoms of cadmium poisoning include acute gastritis, nausea, cramps, vomiting, diarrhea, and weakness. Illness may occur within 10 minutes after eating or drinking the contaminated food. As little as 15 parts per million of cadmium may cause acute symptoms. Foods containing acids are particularly apt to be affected.

None of the recently reported cases resulting from the consumption of cadmium with foods has been fatal. Chronic poisoning, with severe damage to vital organs, will, however, result from repeated exposure.

The difficulty of obtaining aluminum and materials used in making stainless steel has led to the use of cadmium, especially in repairing or replating household equipment.

Utensils in which cadmium has most frequently been detected are refrigerator ice trays, plated aluminum ware, water pitchers, meat grinders, and food choppers and mixers.

## *Henderson, Jordan To Address Engineers On Arms Cooling*

DETROIT — William Henderson, executive vice president of the Air Conditioning & Refrigerating Machinery Association, and F. O. Jordan, consulting air conditioning engineer, will speak before the Detroit section of the American Society of Refrigerating Engineers Monday, Feb. 2, according to an announcement just made by Otto Z. Klopsch, chairman of the section.

Their topic: "Applications of Air Conditioning to Armament Production."

## U. S. Fosters Greater Mining Activity By Price Boosts, Loans

WASHINGTON, D. C.—Major details of the two-point Government sponsored program to meet urgent wartime demands for greatly increased domestic mine production of copper, lead, and zinc over the next two and one-half years have been announced jointly by the OPM and the OPA. Participation by Metals Reserve Co. in the program was announced by Jesse Jones, Federal Loan Administrator.

Expansion of the armament program following entry of the United States into the war has made it imperative that unusual steps be taken to increase further the output of these metals because of their prime importance in the production of armaments.

The new program is expected to increase the rate of production for lead and zinc by at least 30% over the current rate by the end of 1942. The gain in copper output should be substantial, although smaller than that expected in lead and zinc. Rocky Mountain area production of lead is expected to show the greatest gain. The program will enable high-cost copper producers in Arizona to increase output. Gains in copper will also be made in other areas. Substantial increases in zinc production

*(Concluded on Page 12, Column 3)*

## Range Advertising Program Canceled By Kitchen Bureau

DETROIT—The national advertising program on electric ranges sponsored by the Modern Kitchen Bureau has been cancelled owing to exigencies of war and the probability of increased supply difficulties, it was announced last week by C. J. Coward, chairman of the bureau's range advertising committee, and advertising manager, Kelvinator division, Nash-Kelvinator Corp.

Educational work on the electric range, as an efficient method of protecting natural food elements during the cooking process, and as a time-and-labor-saver for American housewives in the emergency period, will be continued through the bureau's over-all operations.

"It Happened in the Kitchen," the bureau's full color talking motion picture, and several mailings of packages of ideas for complete advertising campaigns stressing the "Gain through Use" advantages of the electric kitchen and its appli-

*(Concluded on Page 12, Column 2)*

## Copper Users Must File Form PD - 189, OPM Cautions

WASHINGTON, D. C.—Manufacturers of copper products were warned last week that if they are using copper or copper base alloy in the manufacture of articles on list "A" to Order M-9-c and have not filed Form PD-189, they are in direct violation of law and must file the form immediately.

List "A" includes more than a hundred less essential civilian items, and covers air conditioning equipment (except for essential food storage and food transportation, and industrial processing where and to the extent the use of other materials is impractical); hot water heaters, tanks, and coils and pipe, tube,

*(Concluded on Page 4, Column 1)*

## Dinegar Moves Up; Succeeded By Hammersley

### *Refrigeration's Advisory Committee Meets In Capital This Week*

WASHINGTON, D. C.—W. Hammersley has succeeded Henry Dinegar as chief of the Refrigeration and Cooking Appliance Unit of the OPM. Mr. Dinegar has been promoted to a new post in the Division of Civilian Supply, reporting to Joseph Weiner and Leon Henderson.

Sterling Smith and Rod Tait will remain with the Unit as assistants to Mr. Hammersley.

Invitations have been sent out to members of the industry who were nominated to the Formal Refrigeration and Air Conditioning Advisory Committee, and those who accept will meet in Washington with Mr. Hammersley Wednesday morning.

George F. Taubeneck, editor and publisher of AIR CONDITIONING & REFRIGERATION NEWS, has accepted nomination to membership on the Committee. Other members will be announced in the next issue of the NEWS.

## *Dinegar Addresses Gas Range Makers*

NEW YORK CITY—Future curtailment in the appliance industry will be considerably sharper than it has been, Henry A. Dinegar of the electrical appliance and consumer durable goods section of OPM last week told a meeting of the range section of the Association of Gas Appliance & Equipment Manufacturers at the Waldorf-Astoria hotel here.

Manufacture of some appliances and parts will have to be continued, however, for civilian, defense housing, and military use, he added.

Dr. James F. Bogardus, price executive of the consumers durable goods section of OPA, declared that inflation will cost the United States $50,000,000,000 more for the war effort, if the present rising price tendency continues. He praised the range manufacturers, and appliance manufacturers in general, for holding prices down, declaring that the comparative prices are lower than those of the last World War.

It is not the purpose of the OPA to ask business not to make a profit, Dr. Bogardus insisted. However, he added, a great many people are going to be hurt, and it is the purpose of OPA to see that as few people as possible do get hurt. OPA is anxious to cooperate with business in the serious work that lies ahead, he declared.

## *$14,000,000 War Order To Norge*

DETROIT—Award of a $14,000,000 war order to the newly formed Norge Machine Products division has been announced by Howard E. Blood, president of Norge division, Borg-Warner Corp. The order will be manufactured at Muskegon, Mich., in a plant acquired by Norge from the Austin Road Machinery Co.

Unused for the past year, the plant is one of those constructed during the last World War. Machinery for the new operations was secured by Norge through purchase of a Freeport, Ill., plant formerly engaged in the manufacture of machinery.

Machine tools are being trans-

*(Concluded on Page 4, Column 2)*

NORGE
COLDPACK
Here's My Promise to Every Norge Dealer
Here's Our Promise to Every Norge Dealer
Here's Our Promise to Every Norge Dealer
The Norge Distributors
Something Solid to Tie to... NORGE
As promised..

# NORGE comes through for '42

**SALE-MAKER FEATURES**

- *Famous Night-Watch Automatic Defrosting
- New Base Leveller Adjusts to Uneven Floors
- New Deeper Coldpack Never Used for Defrosting
- New Deeper Hydrovoirs Fully Glass Covered
- New Use of Plastics Lovelier Interiors

**Norge has **all** the other Big Features, too — but **only** Norge has the Night-Watch*

SEE **NORGE** BEFORE YOU BUY

*In recent months* Norge has published a series of advertisements promising to dealers every co-operation and consideration within its power. Swift to back up promise with performance, Norge now presents the new 1942 version of Norge Rollator Refrigeration.

*Keyed to the market* from the dealer's point of view, the new Norge line presents seven models that cover the demand—planned in a powerful and logical step-up sequence that fits the requirements of modern retail merchandising.

*Keyed to the consumer's point of view*, this new Norge line shows brilliant styling, consistently maintained quality, new convenience features, and all the ruggedness, dependability and economy for which Norge has long been noted. Make no mistake about it—*you can depend on Norge for '42.*

NORGE DIVISION · BORG-WARNER CORP. DETROIT

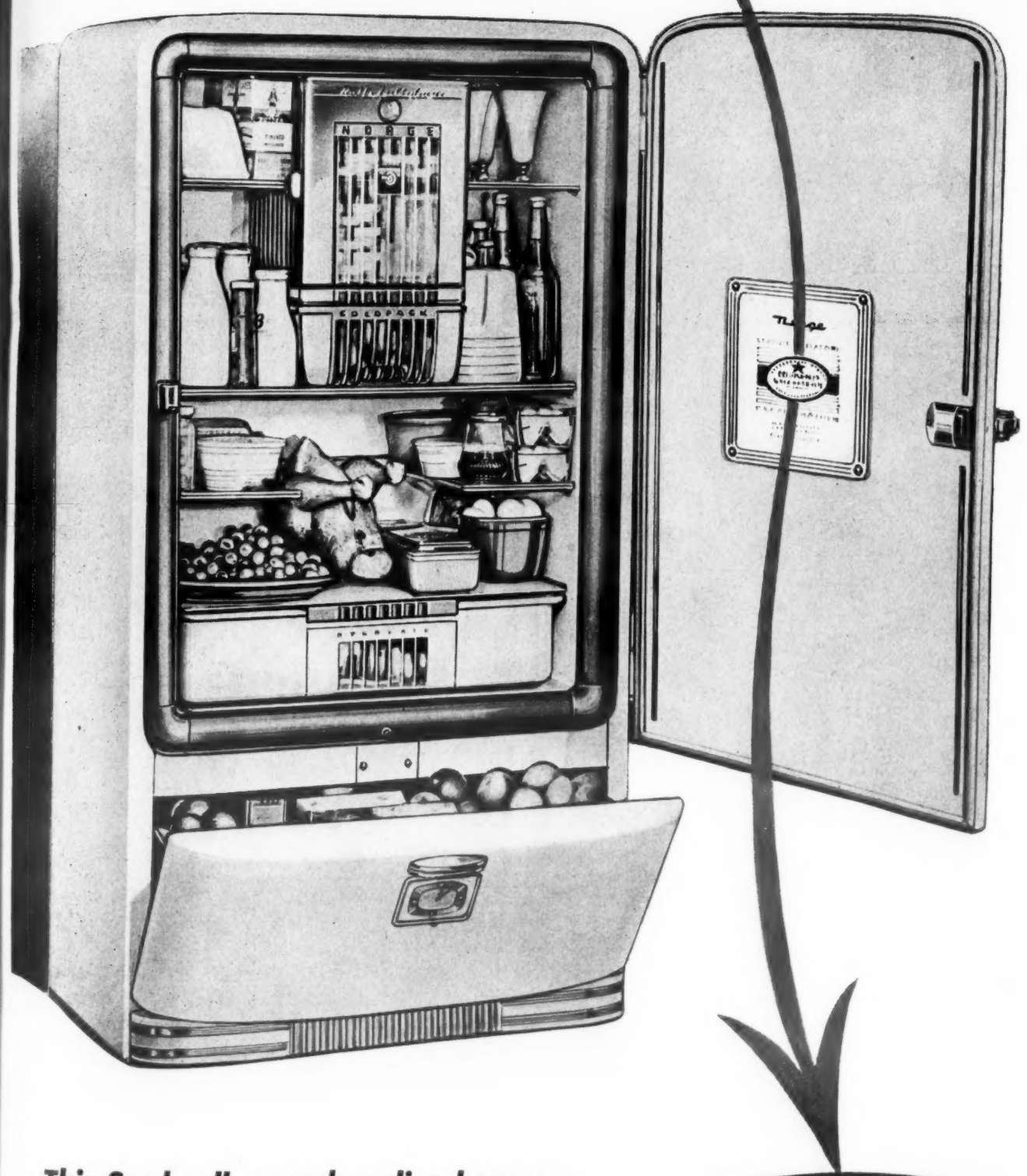
***Something Solid to tie to*—NORGE**

PRODUCT OF BORG-WARNER

# This SEAL will help sell more Norge Refrigerators

You can depend on
NORGE FOR 1942
THE QUALITY GROUP OF HOME APPLIANCES
Here is your new Norge for 1942
. . . more beautiful than ever in its simple, graceful lines and modern as the moment in handsome details of the newest plastics.
But, far more important are the inbuilt features and qualities which contribute to daily convenience and to long, economical service.
The Norge Night-Watch Automatic Defroster, a brilliant innovation, has amply proved itself to be the greatest single improvement in recent years. It is still an exclusive Norge feature in 1942.
And the Norge Rollator Cold-Maker with the exclusive Motor-Cooler continues to deliver outstanding performance and economy, protecting food, safeguarding family health at trifling cost.
You can depend on Norge for 1942!
NORGE DIVISION BORG-WARNER CORPORATION
DETROIT, MICHIGAN
See NORGE before you buy!
RO-TA-TOR WASHERS
SPIRO-SPEED GAS RANGES
OIL BURNING HOME HEATERS
ELECTRIC RANGES
NORGE HOUSEHOLD APPLIANCES
Save Time • Save Work • Save Money

***A reproduction in black and white of the first 1942 Norge Color Advertising in Good Housekeeping Magazine.***




Norge knows that the power of the *Good Housekeeping* Guaranty Seal lies in one very simple fact:– Millions of women believe in it. They look for it when they buy electric appliances.

**YOU know the Power of this Seal**

Saleswise, the Guaranty Seal is as big as the 48 states, as deep as women's confidence and as important to your business as the best salesman on your force. You know from your own experience in your business that this is true . . . And if you don't–just ask your next 25 customers what *they* think about this seal!

***This Seal sells merchandise because***

REPLACEMENT OR REFUND OF MONEY
**Guaranteed by Good Housekeeping**
IF DEFECTIVE OR NOT AS ADVERTISED THEREIN

***your customers know that it means exactly what it says.***

# Filing of PD-189 Is Required of All Copper Consumers

*(Concluded from Page 1, Column 4)*
tubing, and fittings therefor (except as provided in Defense Housing Critical List); sinks and drainboards; grilles; fans; and stoves and ranges (except valves and controls).

Use of copper in the manufacture of these items is prohibited after March 31, 1942, with manufacture from Jan. 1 to March 31 permitted under certain conditions.

Extension in time to March 31 afforded by Paragraph (a) (4) of the Order is not available to manufacturers unless each of the four conditions set forth therein is made, one of which is the filing of Form PD-189. The form should be filled out and returned to the Copper Branch, Office of Production Management, at once. Manufacturers cannot legally take advantage of the extension of time to March 31 unless they do so.

Failure to file the report form may bring legal action by the Director of Priorities officials warned. Forms are available at OPM branch offices throughout the country.

"MOISTURE'S MASTER"
DAVISON'S
SILICA GEL
—USED IN ALL WELL-KNOWN DRYERS
YOUR JOBBER CAN SUPPLY YOU

MILLS MIGHTY REFRIGERATION
Mills Condensing Units
By Mills Novelty Company
4100 Fullerton Ave., Chicago, Ill.

FREEZING WHILE DEFROSTING
WATER DEFROST
FOR FREON METHYL CHLORIDE SULPHUR DIOXIDE AMMONIA, and BRINE
WITH RECOLD HUMID AIR LOW TEMPERATURE EVAPORATORS
PATENTED U.S.A. No. 2,219,393 CANADA No. 394,209 NEW ZEALAND No. 82,359 OTHERS PENDING
LICENSEES IN U.S.A.
Bush Mfg. Co. Hartford, Conn.
Kramer-Trenton Co. Trenton, N. J.
REFRIGERATION ENGINEERING, INC.
Los Angeles, California, U.S.A.

The Machine For Your Next Job...
If it's a refrigeration job ...no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.
GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-3, Beloit, Wis.
Model 153 Water-cooled Machine
Lipman

# *Reclaimed Rubber Use Foreseen For V-Belt Production*

*(Concluded from Page 1, Column 1)*
lent of half a ship load from the Far East," Mr. Richardson said.

Need for V-belts will not only continue, he pointed out, but demand is expected to increase sharply because production curtailments of new cars and appliances will mean longer use of those now in service.

Goodrich has thoroughly tested these Victory V-belts, Mr. Richardson said, and results show service equivalent to 80% of its standard V-belts formerly made entirely of crude rubber.

"This means that the industry and the public can cooperate fully in the nation's rubber conservation program and still keep in operation automobiles that need fan belts, as well as washing machines, refrigerators, oil burners, ironers, home machine tools, air conditioners, water pumps, and thousands of other typically American labor-saving devices which play vital roles in our everyday lives," he asserted. "This development may mean the difference between operating home appliances or not operating them in the months to come."

# Central Agency To Buy All Units For Housing Projects

*(Concluded from Page 1, Column 2)*
Construction of the total of 162,000 permanent and demountable homes will call for an estimated expenditure of $56,700,000 for movable and fixed equipment. The average cost of equipment to be installed in each dwelling unit will approximate $350.

In addition to effecting a large saving in cost, the mass purchasing procedure will enable the manufacturer to speed up production by obtaining priorities on necessary materials, Mr. Snyder said. Production will not be subject to restrictions imposed by the government on the manufacture of refrigerators and other household equipment, he added.

Volume purchasing, based upon long-range planning, also will make it easier for the manufacturer to deliver equipment on schedule, thus eliminating a possible cause of delay in completing defense housing projects.

In the past, with the exception of mass purchases made by the Public Building Administration for PBA projects, equipment for defense housing projects was bought by individual contractors on the various projects and charged to construction costs or included in heating and plumbing contracts.

Under the new purchasing procedure the Mass Procurement Planning Section of the Federal Works Agency will establish standard specifications and determine the amount of equipment needed.

# Norge To Build Arms In Newly-Bought Plant

*(Concluded from Page 1, Column 4)*
ported from Freeport to Muskegon under Norge supervision, and are expected to be in production early in March. Manufacturing operations will be directed by O. H. Shenstone, who has been superintendent of Detroit Aircraft Parts division of Borg-Warner. Assistant general manager will be Walter Yale, formerly master mechanic under Mr. Shenstone at Detroit.

Production and purchasing will be directed by Henry Jewell, who will come to the new post from the Norge refrigerator plant at Muskegon.

The plant will be manned, in large part, by workers formerly engaged in production of Norge and Detroit Vapor Stove products, it was said. This will minimize unemployment resulting from curtailments of domestic production.

The contracts were awarded to Norge by the A. O. G. Corp., New York City, and Hudson Motor Car Co., operator of the new Naval arsenal here.

# Modern Equipment Develops New Units, Retains Old Policy

DEFIANCE, Ohio—Modern Equipment Corp., manufacturer of "Par" refrigeration condensing units, has added extensively to its line of truck refrigeration equipment for 1942, the new models comprising truck model condensing units in sizes from ⅓ to 1½ hp. and three models of portable condensing units in sizes from ¾ to 1½ hp. for use in connection with refrigerating meat and ice cream delivery trucks equipped with eutectic plates.

These portable models are complete refrigerating plants mounted on cushion rubber wheels and consisting of the condensing unit, liquid sight indicator, heat exchanger, filter dryer, and high and low pressure gauges mounted on a panel board as an integral part of the portable condensing unit for ready connection of the truck to be refrigerated.

The policy of Modern Equipment Corp., which has always been confined to selling its output exclusively through refrigeration wholesalers, will not be changed during 1942, reports W. C. Allen, vice president in charge of sales.

At present the company is filling orders on all sizes of equipment shown in its current catalog in from two to three weeks after receipt of order, Mr. Allen stated.

"Our customers can cooperate with us by securing a greater percentage of priority or defense business, which will assist them in securing the necessary materials to maintain a steady flow of deliveries during the duration of the emergency," Mr. Allen declared.

Soon to be distributed, said Mr. Allen, is the 1942 Modern Equipment Corp. catalog which will illustrate and give specifications on products which will be available in 1942.

# *Steel Shortage Will About Eliminate Private Building*

NEW YORK CITY—The already gloomy outlook for private building in the United States was further darkened last week when John L. Haynes, chief of the lumber and building materials division of OPM, declared that his office was contemplating greater curtailment of non-essential construction because of growing material scarcities.

Mr. Haynes told the New York Building Congress, Inc. that consumption of steel for high-priority purposes has been rising 5% a month, and that in the coming year orders for military and urgent civilian needs will take 85% of the nation's production.

"Curtailment in non-military lines is the order of the day," he asserted, "and the construction industry, which in normal times uses one-sixth of the nation's steel supply, is no exception."

General scarcity of materials is a challenge to the industry that must be met, and building codes must be made more reasonable to permit the use of new materials, he observed. It is possible, he added, to build a house with about one half of the iron and steel now used.

The copper situation is even more serious than the steel, Mr. Haynes said, with a demand several hundred per cent in excess of the supply.

Regarding priorities, OPM is operating at present on the basis of making available to manufacturers materials for three months' inventory with a minimum of red tape; a two months' supply for distributors and dealers, and is restricting scarce materials to essential uses.

# John Wicht Heads Washer Producers

CHICAGO—John M. Wicht, General Electric Co., was elected president of the American Washer & Ironer Manufacturers' Association at the annual meeting Jan. 8 in the Morrison hotel. Mr. Wicht succeeds W. Neal Gallagher, president of Automatic Washer Co., Newton, Iowa, who has been named executive secretary and treasurer of the association.

# *ASHVE To Discuss Variety of Problems In Annual Meeting*

*(Concluded from Page 1, Column 1)*
27, D. A. Wilbur and R. F. Simons will report on "Determining Sound Attenuation in Air Conditioning Systems," W. Z. Friend will outline "Corrosion Tests in a Water Recirculating Air Conditioning System," and "Entrainment and Jet-Pump Action of Air Streams" will be reported by G. L. Tuve, C. B. Priester, and D. K. Wright, Jr.

Report of a study of "Physiological Influence of Atmospheric Humidity," prepared by the A.S.H.V.E. advisory group on physiological reactions of which C.-E. A. Winslow is chairman, will share interest at the session at 9:30 a.m. Jan. 29 with a similar report on "Physiological Fatigue from Exposure to Hot Environments," by Dr. M. D. Ferderber, F. C. Houghton, and W. L. Fleisher.

Other topics of interest to air conditioning engineers include a report on "Panel Heating and Cooling Studies" by B. F. Raber and W. F. Hutchinson, at the 2 p.m. session on Jan. 26.

# Jack North Again Elected Cleveland League President

CLEVELAND—For the nineteenth consecutive year, J. E. (Jack) North was elected president of the Electrical League of Cleveland by the board of directors of that organization at its Jan. 12 meeting.

Other officers named were: F. R. Maguire, the W. Bingham Co., first vice president; Harrison T. Coe, the Higbee Co., second vice president; Harry Hutchisson, treasurer; and Will T. Clark, secretary and assistant treasurer.

Directors of the league for 1942 are: W. W. Adams, Westinghouse Electric Supply Co.; John J. Bohning, George Worthington Co.; Harrison T. Coe, the Higbee Co.; William S. Fell, Enterprise Electric Lighting Fixtures, Inc.; James A. Foukal, Sterling & Welch; Homer G. Frank, Strong, Carlisle & Hammond Co.; Carl E. Fruehauf, Fruehauf Hardware Co.; A. F. Head, General Electric Supply Corp.; F. G. Hickling, Westinghouse Electric & Mfg. Co.; Frank F. Hopperton, Elliott Electric Co.; H. H. Kennedy, Frigidaire division, General Motors Corp.; H. L. Martien, Martien Electric Co.; G. E. Miller, Cleveland Electric Illuminating Co.; Mr. North; A. L. Perry, Graybar Electric Co.; Karl R. Schuele, Fries & Schuele Co.; and E. F. Whitney, General Electric Co.

While certain sales promotional activities, which have been features of the Cleveland league's operations in the past, were discontinued as of Jan. 1 because of the present national emergency, nevertheless a farsighted program of increased service to Cleveland homemakers and to the electrical industry's league members has been planned for 1942.

Afternoon demonstrations in the league auditorium for women's clubs, featuring wider and more efficient use of appliances, as well as their maintenance and care, will be continued.

# *Chrome Report Deadline Extended To Feb. 1*

WASHINGTON, D. C.—Due to delay in printing the form (PD-221), the date for filing reports on chrome alloy, iron, and steel on hand under the requirements of Supplementary Order M-21-d will be extended to Feb. 1, it was learned last week. Under the original order, the reports would have been required on Jan. 15.

Supplementary Order M-21-d provides that no person shall consume, use, fabricate, or deliver corrosion or heat-resisting alloy, iron, or steel containing more than 4% chromium except on ratings of A-10 or higher, and requires a report on PD-221 on all materials on hand subject to the order.

# 'Small Businessmen' Representatives To Meet In February

WASHINGTON, D. C.—A unified plan for governmental action that would aid the small business man is expected to be worked out when representatives of little business meet here early in February, probably the 10th to the 12th.

The meeting, which was suggested by Senator James M. Mead of New York at hearings of the Senate Aid to Small Business Committee will strive to devise programs for Congress and state legislatures that will help the small business man survive wartime economy.

It is planned to restrict attendance, possibly to 100, and limit discussions to an agenda prepared well in advance, in order to avoid a repetition of the meeting of small business men held in Washington some years ago. A united program for Federal legislation is expected to be presented to Congress by early Spring by business men.

Sponsors of the February meeting apparently are the National Small Businessmen's Association's Illinois unit and the American Business Congress of New York. Representatives are expected from Little Business, Inc. of West Virginia, the Independent Small Businessmen of Massachusetts, the Small Business Association of New England, and the Smaller Business of America Association of Ohio.

Sylphon SHAFT SEALS
The Standard of Quality
THE FULTON SYLPHON CO.
KNOXVILLE, TENNESSEE
Representatives in All Principal Cities in U.S.A. and in Montreal, Canada and London, England

# ALL-OUT AID

## *for an All-Out Effort*

The *WAR* is on. VICTORY calls for equipment and more equipment.

COMMERCIAL REFRIGERATION equipment is going to be vitally needed this year in ARMY bases and on NAVY ships . . . needed by HOSPITALS, CREAMERIES, DAIRIES, FOOD MANUFACTURERS, WHOLESALERS, FOOD PACKERS, BUTCHERS, DELICATESSENS and GROCERS.

Your industry is very much in this fight. Your company is in it, too, as are your customers, both wholesale and retail.

To speed up sales and installations, COMMERCIAL CREDIT offers this sound, practical time-payment plan, worked out in co-operation with, and for the ultimate benefit of the Commercial Refrigeration Industry.

Manufacturers, branches, independent distributors and retailers of cabinets, coils, compressors and fixtures will make the most of their 1942 efforts by the immediate adoption of this uniform time-payment plan.

Promote *your* business and protect *your* profits. For further details, write or 'phone your nearest COMMERCIAL CREDIT office . . . or *MAIL THE COUPON BELOW.*

# COMMERCIAL CREDIT COMPANY

BALTIMORE

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**BALTIMORE, MD.**

Please send me the folder describing the new COMMERCIAL REFRIGERATION FINANCING PLAN.

**NAME** _____

**ADDRESS** _____

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**Refrigeration Will Help Win the War**

# Service Firms Will Be In Demand

WITH manufacturers marking time until they get definite word from Washington about what they can make, how much, and to whom they can sell it, stocks of refrigeration parts and supplies are becoming rapidly depleted in many parts of the country.

Inventories are unbalanced. All too frequently the service man can get most of the parts he needs for a job, but can't go ahead because some one thing is missing.

It's not strange, then, that service men are writing us letters, wondering if they are to be "prioritied" out of business. Should they, one man writes us, close up shop and look for a job in some armament plant? Is there any future in the refrigeration service business?

We answered him as follows:

Dear Mr. X:

Of course, nobody can definitely foresee what will happen to any particular line of endeavor during the long period of war which we face. Almost everybody will be seriously affected before it is over, and many of us may find ourselves in strange occupations.

However, on the basis of the very latest and most authentic information available, it would seem that you are in a particularly useful occupation, and that every effort will be made to see that you are allowed to continue the services which you are now rendering to your community. It is quite likely you may have to exercise considerable ingenuity in the matter of using substitutes, and in keeping existing installations operating "with prayer and bailing wire."

An excellent repair parts order, granting priority ranging from A-10 to A-3, is now half way through "the works" in the OPM, and we are told that it will be issued within the next few weeks. This will help you immensely.

Also, it appears as if we had won our fight to get commercial refrigeration placed on the "essential civilian services" list, and that considerable production of commercial refrigeration equipment will be permitted. Note, also, please, that the uses of refrigeration and air conditioning in defense manufacture and directly for the Army and Navy will increase rapidly. Activities in connection herewith may eventually take up most of your time.

These, at least, are the **intentions.** As a member of both the Air Conditioning and Commercial Refrigeration Industry Advisory Committee of the OPM, and Donald Nelson's Advisory Committee of Business Paper Editors, I have been present when these things have been discussed, and I feel confident that this advice is accurate. However, plenty of bottle necks will undoubtedly appear and you may be sorely beset with difficulties—as will people in practically every other line of business.

The shortage of service men is now appearing and may grow alarmingly (it has already become a most serious situation in England). In that case, you are likely to have more work than you can take care of before the year's end.

Commercial refrigeration is a truly essential civilian service, and in maintaining existing commercial refrigeration facilities, along with helping to install such new facilities as may be deemed necessary, you will indeed be serving your country well.

## SHORTAGE OF SERVICE MEN MAY BE SERIOUS

All indications point toward the belief that service men and service organizations will get scarcer and scarcer, and have to work harder and harder, in the time to come.

Refrigeration service men have been recruited largely during the last decade. They are mostly young men, the type of young men Uncle Sam wants for his army and navy. Numbers of them have already joined the armed forces; thousands more will likely be called.

Then, the high-pay-for-skilled-mechanics lure of the booming armament industries will continue to draw off more and more young men who formerly made a living servicing refrigeration machines.

## NUMBER OF REFRIGERATION UNITS INSTALLED NOW AT PEAK; SERVICE NEEDS EXPANDING

To make matters more difficult, the relative scarcity of new equipment will throw the biggest burden of all time on refrigeration service men. When an installation gets out of order, no longer can the simple, quick solution of selling a unit rectify the difficulty. From here on in, the job will have to be *repaired,* and occasionally it may have to be repaired without all the elements which the service man is used to having.

In other words, the nation's refrigeration service organizations will, in 1942 and henceforth:

(1) Be fewer in numbers

(2) Have more work to do than ever before

(3) Have less new equipment to work with

(4) Be forced to rely on knowledge and ingenuity

## 'KNOW HOW' ACQUIRES NEW IMPORTANCE WITH SHORTAGES

To the refrigerator dealer, then, we say: "See to it *right now* that your service department is adequately staffed, and thoroughly trained. Better learn something about servicing yourself, because you may need that knowledge in an emergency. From midsummer on, *service is going to be your bread-and-butter.*"

To independent service organizations we say: "Don't get discouraged—your services will be needed by America, needed as never before. Try to keep your good men. Train replacements for those you have lost. Brush up on your *knowledge,* because the use of more 'know-how' will be your only salvation in the face of materials and supplies shortages."

The situation in England has become almost tragic, we are informed. So many service men have gone into the army that the few remaining are among the most overworked individuals on the island. They are shunted around all over the country, from job to job, and ofttimes serious food spoilage situations arise when it is impossible for them to take care of all the work awaiting them.

Our own situation may become even worse, because of our greater dependence on refrigeration, our larger population, greater food consumption, longer distances, and numbers of installations.

Indeed, the service man will be in demand in 1942.

## *They'll Do It Every Time . . . . . By Jimmy Hatlo*

HMMPH! I DON'T SEE HOW HE DRESSES THAT WAY ON THE 35 DOLLARS A WEEK WE DISH OUT TO HIM.
YES, BRICK BLINKER GETS 55 AND EDDIE GARFINKLE GETS 60 A WEEK. THEY CAN'T DO IT AND THEY'RE BACHELORS.
THOSE TWO OLD PARROTS IN THE CAGE ARE ON THE AIR AGAIN
THEY'RE GIVING THE OLD MAN MORE GRAY HAIRS THAN HIS INCOME TAX.
CASHIER
OH-H-H, SO? WHEN DID EDDIE GET A RAISE TO 60? WHAT'S HE GOT I AIN'T GOT? I'M CERTAINLY GOING TO SEE ABOUT THIS!
YEH - STATION B-L-A-B. THEY OUGHTA CHANGE THAT CASHIER SIGN TO "BROADCASTING BOOTH.
THE DAY THE TAILOR GARNISHEED MY SALARY EVERYBODY IN THE JOINT KNEW IT BEFORE I DID.
GETTING AN EARFUL AT THE OFFICIAL OFFICE NEWS BUREAU.
-o-
THANX TO ANN NONYMOUS
1-14
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# LETTERS

## SPANISH EDITION OF DIRECTORY HAILED AS VALUABLE WORK

Instaladora Moderna
Sendeja, Num. 1, Bilbao, Spain

Editor:

Purposely I have let elapse this period of time between receiving the Spanish edition of the Directory of Refrigeration & Air Conditioning so kindly sent by you, and the date on which I send you this letter, for the double purpose of expressing to you my thanks for the courtesy which your company has shown and to give you my personal impression of this grand book—an impression, although not technical, nevertheless sincere.

In it I have found all the practical theory necessary for the developing of my industry, and many other things very valuable and worthy of close study, in order to widen my business once the world is back on its solid base of peace, which I pray to God is not too distant.

My effusive congratulations on the grand job you have done in publishing this notable book which will benefit this important branch of the industry in many ways and in which you can take great pride.

MANUEL PEREZ

## DR. SCHLUMBOHM REPORTS ON A SCIENTIFIC TOOL

Propane Development Corp.
Thermobile Division
123 E. 37th St., New York, N. Y.

Editor:

I am responding to the fervour of your editorial of the 17th of December.

In the July 1941 issue of "Refrigerating Engineering" I reported on "Automotive Refrigeration by the Transitory Cycle" and on the "Thermobile."

On page 16 of that issue you will find a compilation of the advantages of my invention over the standard "closed cycle."

The Thermobile is the simplest and cheapest refrigeration system ever designed. It has more latent momentum than is obvious at first view. If you study the article, please take the trouble to study the details of the "level control."

Take also the decreasing availability of expert service men into consideration, and you will realize the importance of a system which is filled up automatically with the correct amount of liquid refrigerant just by pushing the starter button.

The Thermobile patents are owned by this company. Instead of giving an exclusive license to one company, we would be prepared to grant non-exclusive licenses to all companies who would be interested.

Saving critical materials can only be achieved by replacing, wherever possible, electric refrigeration by fuel-powered refrigeration, and in that case the Thermobile is the answer.

Its fuel, bottled gas—propane or butane—serves also as refrigerant, prior to its combustion, and there certainly is no scarcity of this refrigerant.

Here is one of the scientific tools you are calling for.

DR. PETER SCHLUMBOHM,
President

## A DRAFTSMAN SALUTES 1942

Superior Valve & Fittings Co.
1509 West Liberty Ave., Pittsburgh, Pa.

Dear George:

Enclosed is a poem which our draftsman and designer, C. A. (Carl) Witt, claims the honor of having originated.

It was our thought that you might see some good in this poem and perhaps wish to publish it. If so, you are free to do so.

K. M. NEWCUM,
Vice President and Sales Manager

## GOODBYE '41, HELLO '42

By C. A. Witt

Goodbye '41
Hello '42
We've got a job to do;
To stay on the map
We've got to lick those Japs
And likewise Hitler too.

And when this is done
We'll all have some fun
And swear by the red, white and blue.
That with God up above
In this land that we love
We'll be loyal through and through.

You'll be tired '42
When it's time to say adieu
But please don't feel dismay
For young Mister '43
Will also fight for liberty
And keep them flying every day.

We'll lick those yellow Japs
And throw Hitler in their laps;
And then we'll all proudly say,
That we're Americans true blue
So we greet you '42
In the land of the U.S.A.

# Distributor-Dealer Doings

## 'Blackout' Situation On Coast Spurs Sale Of Small Appliances

SAN FRANCISCO — Most appliance dealers here who feared that air raid alarms, blackouts, etc., would damage sales are reporting even larger sales than before the Pearl Harbor attack—particularly in the radio department.

Immediately following the news of the war, there was a rush for table radios which has kept up continuously ever since—most buyers stating that they wanted sets small enough to take from room to room, enabling them to keep in close touch with the news. Dealers with a small stock of two dozen or so miniature radio sets sold out in two days following the attack.

Appliance sales at Hale Brothers department store have been on the rise since war was declared, reports C. H. Williams, appliance buyer. Here, too, there has been a steady rush on small radios, and housewives are hastening to buy such "comfort" appliances as toasters, waffle irons, etc., while they are still available.

## Pittsburgh Housewares Club Names Officers

PITTSBURGH — Theodore Levite of the Rosenbaum Co. here was elected president of Pittsburgh Housewares club at its annual dinner meeting.

Other officers for the 1942 season are Glenn E. Ferrell of Jos. Horne Co., first vice president; A. J. Buzzard of Spear & Co., second vice president; Max Fischman of Kaufmann's Dept. Store, treasurer; and J. L. Detchemendy of Aluminum Co. of America, secretary.

L. E. Walton of General Electric Supply Corp. was named chairman of the club's board of directors which includes Lew Williams of J. A. Williams Co., James Weixel of Kaufmann's, Lew Palley of Palley Mfg. Co., A. H. Knight of Gimbel Bros., Roy Cunningham of Graybar Electric Co., C. L. Elumer of Westinghouse Electric Supply Co., and Lou M. Strauss of Son Chief Electric Co.

## *Springfield, Mass. Firm Moves Headquarters*

SPRINGFIELD, Mass. — Western Massachusetts Distributors, Inc., moved its office and warehouse Jan. 2 from 214 Birnie Ave. to the former Allen-Cadillac building at Belmont Ave. and Locust St. The company is distributor for electrical appliances, radios, and phonographs. Edward P. Cahill is president of the company, and Herman Fleischman is treasurer.

## Robert Fichter Leaves For Army Job

PHILADELPHIA—Robert Fichter, local refrigeration promotion manager for Westinghouse Electric & Mfg. Co., has taken a leave of absence to join the army.

## Frigidaire Dealer Wins Display Prize

MANNING, S. C. — Edwin Eden, local Frigidaire dealer, won second prize with his electrical appliance booth at the Clarendon County Fair.

## *Edison Institute To Emphasize Service In 1942 Program*

NEW YORK CITY—Proper servicing of present electrical appliances and their use in the home so as to conserve both electric power and critical materials will occupy an important place in the "victory" program toward which the commercial activities of Edison Electric Institute will be pointed during the present war period, according to an announcement by C. W. Kellogg, president of the organization.

Under the broad objective of winning the war, commercial studies will aim to stimulate the service phases of utility company operations, and to foster a type of advertising which will stress such use of present equipment as will insure a minimum requirement of critical materials, Mr. Kellogg said.

Committees will encourage the repair of present appliances and major equipment, so that customers' devices may continue serviceable. Cooperation with other branches of the electrical industry concerned with sales and service of appliances will be sought.

How to use electricity in industries so as to speed maximum efficient production without waste, and to improve quality, will be studied by another committee appointed under the new EEI program. This committee also will study how to build up system load factors to reduce peak loads and losses on utility systems. EEI also will give continued assistance to the sub-contracting and other divisions of OPM.

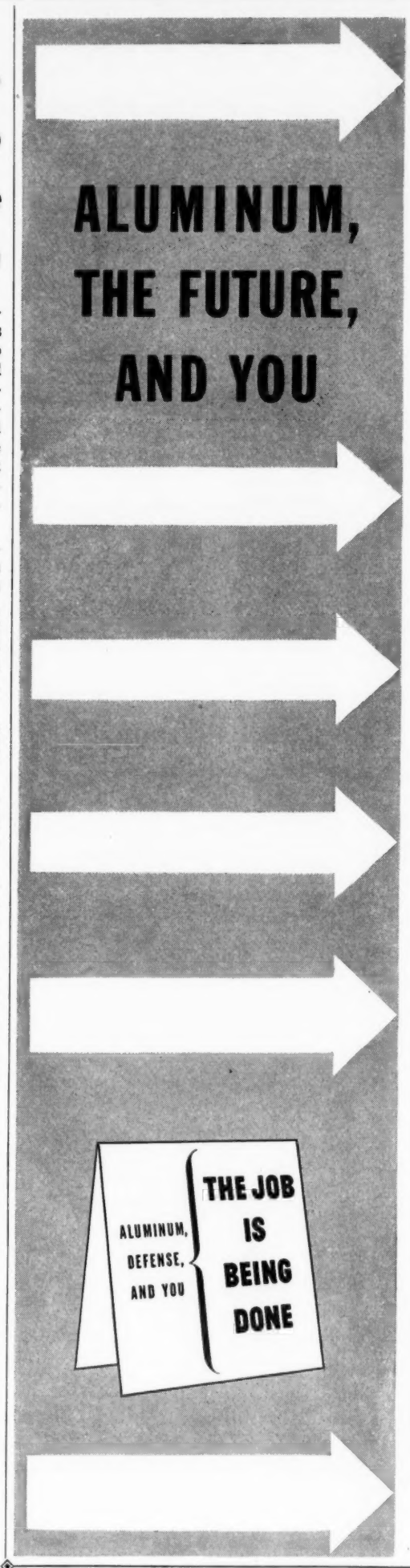
A home service committee will study kitchen rearrangements for labor saving and meal planning to meet the increased cost of living, while maintaining the maximum nutritive values of food. A farm service committee will study methods and equipment which will give maximum increase in farm production, relief in farm labor requirements, and minimize loss in perishable food.

Committee studies also are to be organized along the lines of research and planning for the postwar period, when intensified sales efforts must be relied upon to cushion the economic shock.

When it started its all-out defense effort, the United States was fortunate to have an electric power industry with capacity exceeding that of England, France, and Germany combined, Mr. Kellogg said. "Today this industry is meeting the demands which a 'victory program' is placing upon it, and in 1941 and 1942 will have spent more than one billion dollars on installing facilities to meet the increased demands of still further expanded defense efforts," he asserted.

## *Cleveland Dealers Plan For Home Show*

CLEVELAND — Thirteen distributors and probably 70 major appliance dealers will exhibit appliances at the Greater Cleveland Home & Flower Show, to be held in the public auditorium here during February. Appliance exhibits will be as large as ever despite priorities, declares R. P. Stoddard, manager of the show. Additional interest will be created by three complete all-electric homes which will be spotted among dealer displays. There will be a special show booth explaining refrigeration service, appliance repairs, and maintenance offers to be made by Cleveland dealers.


*RIGHT NOW OUR FACTORIES* have only one interest: to make more Defense Aluminum than the world has ever seen before. Every resource we can muster is concentrated on that job.

*WHEN AMERICA HAS WON THROUGH* to make the world safe for our children to live in . . . the saying is: What a lot of aluminum is going to be available for everybody.

*THE REAL POINT TO PONDER* is how to get set to make that deluge of light metal work for you. In the kind of world we're going to have, sure as fate, the man who fails to call, *now*, on every resource at his command is going to be left at the post.

*WE'VE COINED A WORD:*

*IMAGINEERING.* It's the fine art of deciding where you go from here. It's the act of thinking out what you are going to face, and doing something about it now. *Imagination* plus *engineering* is a formula for the future you're going to hear more about.

*A MAN CAN* be producing for Defense at top speed and be imagineering at one and the same time. In fact, the more he is devoted to Defense now, the more he needs imagineering for *THE DAY WHEN.*

*OBVIOUSLY,* you can imagineer with steel, copper, glass, zinc, plastics, or what have you. We hope you will, because the world is going to need better use of all materials than it ever saw before.

*THE CLOSER YOU GET TO FUNDAMENTALS* the more quickly you must decide that the great need is going to be for the very things Alcoa Aluminum does best: Lightness with strength, resistance to corrosion, reflectivity, workability and all the rest of its powers all wrapped up in a low-cost package full of unlimited possibilities for you, personally, in your business.

*TWO HEADS ARE BETTER THAN ONE.* Already, many an industry, many a company, has called us into an imagineering session. We've seen things projected that will make news when the curtain can be lifted. Usually we've been able to help with some imagineering of our own.

*DOES THIS SUGGEST ACTION? WE HOPE SO.*

Aluminum Company of America, Pittsburgh, Penn.

ALCOA ALUMINUM


# Appointments & Promotions

## Woodard To Manage New Products Division

EAST SPRINGFIELD, Pa.—George H. Woodard has been named manager of the new products division of Westinghouse Electric & Mfg. Co. Mr. Woodard has been with Westinghouse since the division was formed in 1936.

## Boyd To Harrisburg

HARRISBURG, Pa. — John L. Boyd, formerly with Geyer, Cornell & Newell and Nash-Kelvinator Corp., Detroit, has joined the McFarland Publicity Service here as account executive.

## New Manitowoc Store

MANITOWOC, Wis. — Friedman Radio & Appliance Co. has been opened here at 905 Washington St.

## *Balestreri Is District Manager For Wildermuth*

BROOKLYN—M. J. Balestreri has been appointed a district sales manager for E. A. Wildermuth Co., appliance distributor in the New York metropolitan area. Mr. Balestreri was at one time with Electric Vacuum Cleaner Co. in Queens, and has been connected with appliance retailing for several years.

## Pepple Transferred In McCray Shift

DALLAS, Tex.—R. K. Pepple, for the past several years in charge of the Dallas factory branch of McCray Refrigeration Co., has been transferred to the Memphis, Tenn. branch as manager. W. H. Segler has been placed in charge of the local office.

## *Gross Electric Opens Modern Showroom*

TOLEDO—Gross Electric Co., retailer of General Electric and Stewart-Warner refrigerators, Hotpoint ranges, and Philco radios, opened a new appliance store at 142 Summit St. recently with a "housewarming" for old customers. Showrooms are done in modern colors, with comfortable leather furniture and fluorescent lighting. Milton Gross is president of the company.

## W. S. Condle, Veteran Dealer, Is Dead

BURLINGTON, N. J. — Veteran appliance dealer Williard S. Condle, who sold the first electric refrigerator ever installed in this city more than 20 years ago, died here last month, after a short illness. He had operated the Condle Furniture & Appliance Co. for 21 years.

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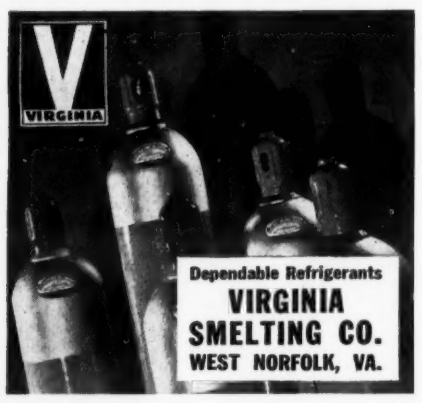

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# Beginning—Analysis of Motor Troubles In Refrigeration Units

## Motor Troubles & Their Correction

*Editor's Note:* Beginning with this issue of AIR CONDITIONING & REFRIGERATION NEWS is a new section in the series of articles on motors written by R. A. Fuller of General Electric Co.'s industrial engineering department—a section that is of prime interest and importance to service engineers now, because it deals with the servicing of electric motors. Previous articles have discussed fundamentals of motor construction, and proper installation and maintenance procedure.

By R. A. Fuller,
Industrial Engineering Dept.,
General Electric Co.

## Complaint - -

### A. Overload Device Trips Out or Motor Overheats - -

"Overload Device Trips Out" is a complaint in which the evidence is clear. There is no question of the fact that the overload has tripped. The real problem is to determine the cause of the tripping. Many of the causes, covered in the following section on "Motor Does Not Start," will lead to tripping of the overload.

"Motor Overheats" is a complaint that should be verified with a thermometer unless the evidence is unquestionable such as smoke and charred insulation. The temperature of a motor cannot be dependably determined by feeling of it with your hand.

The thermometer bulb should, if possible, be put on the winding with putty or felt over it so that it is not affected by the temperature of the surrounding air. Temperatures higher than 200° F. tend to be excessive and corrective action may be required.

When the construction of the motor is such that a thermometer cannot be placed on the stator winding it is possible to determine the temperature rise of the windings by measuring their increase in resistance. Information on measuring temperature rise by changes in resistance can be obtained from electrical handbooks. The facilities for such measurement are not usually available to the service man and so the following method is recommended.

Measure the current flowing into the motor with an ammeter (the ammeter should be short circuited during starting to avoid damage to its needle). The motor current that is maintained for any appreciable length of time should not exceed the value obtained when the full load amperes on the motor nameplate is multiplied by the following factor. (Note: This data applies only to 60 cycle, 1,800 r.p.m., 40° C. rise motors, 2 hp. and below, and all speeds 3 hp. and above.)

| Motor Horsepower | Factor |
|---|---|
| ¼ to ¾ | 1.40 |
| 1 | 1.35 |
| 1½ and 2 | 1.25 |
| 3 and larger | 1.15 |

Example: A 2-hp. motor nameplate is stamped "Full Load Amperes 5.0." Multiplying this by 1.25 we obtain 6.25 amperes as the motor current which should not be exceeded for any appreciable length of time.

It should be noted particularly that there may be special cases, chiefly in packaged units such as air conditioners, water coolers, ice cream cabinets, beverage coolers, and so forth, in which the equipment manufacturer may have made special tests to permit loading to somewhat greater values than noted above. In such cases the equipment manufacturer's application data on the complete equipment should be consulted, if overloading is suspected, to make sure that the equipment application limits have not been exceeded.

For direct current motors thermometers are placed on the series, shunt, and commutating field windings. When these thermometer readings indicate that the motor is at its highest temperature, that will be maintained over any appreciable length of time, the motor is stopped and thermometers are quickly puttied on the armature winding at the commutator end. These thermometers are then watched continuously until they pass the maximum temperature point. This maximum temperature should be considered as the armature winding temperature.

The simplest corrective action, for overload tripping and motor overheating, is to reduce the overload. The amount of overload can be decreased by reducing the speed of the load or by installing a larger motor.

Other methods are to reduce the head pressure, or back pressure, at which the condensing unit is operated. Usually there is objection to these methods due to the undesirable effects on the operation of the cooling equipment or to the cost of making the change.

### 1. Faulty Overload Protection

Faulty Overload Protection is a fairly common type of trouble as evidenced by the number of complaints on the overload tripping out. In some cases this may be due to a somewhat too sensitive adjustment of the overload relay.

In general, however, there is a more basic problem involved. In a large percentage of condensing unit applications the load is very light with the exception of a short period usually during the summer months. Even then the extremely heavy loads are usually intermittent—being experienced only during the day in some air conditioning equipments and, of course, only during the running period on refrigeration installations. Thus it is economically sound that the motor should be loaded nearly up to its limit during these peak load periods.

The overload protection must not trip under these operating conditions and still must trip out before the motor can be damaged. The variations in manufacture of overload devices and motors, together with the variations in condensing units and their applications, affect the accuracy with which the overload protection can be applied.

Thus there are two conflicting tendencies. First, there should be as much margin as possible between the heaviest load placed on the motor and the permissible limit of motor loading to allow for the variations in the overload protection.

Second, this margin should be as small as possible so that the customer can obtain the maximum amount of refrigeration per dollar of cost of the original equipment. With these conflicting tendencies it is understandable that some overload tripping trouble is experienced.

These conditions have sometimes led to the use of oversize overload heaters and even to the short circuiting of the overload protection in some rare cases. These are hazardous practices as the motor partially, or wholly, loses its proper protection.

Some overload relays can be adjusted. The service man should acquaint himself with the proper methods of making such adjustments and the limits for them. In particular it should be noted that bimetallic strips, the laminated metal strips that warp when they are heated, should not be bent. Such bending affects their characteristics. The control manufacturer will be the best source for this adjustment information.

Nearly all overload devices are sensitive to heat. If the ambient temperature of the overload device is higher than that of the motor the overload will trip at a lighter load than is necessary. It is therefore desirable to have the overload device in the same ambient as the motor.

Cases have been known where the reverse of this principle has been used. Trouble was being experienced with the overload tripping out. The cover of the motor control case was opened and, to still further increase the cooling effect, an electric fan was used to blow air into the control. This, of course, increased the load, at which the overload device would trip, above normal. Such practices are hazardous as the motor does not have its proper protection.

It has been found that automatic reset overload protection is immensely valuable in eliminating complaints on the overload tripping out. These devices are available on nearly all fractional horsepower motors and on some single phase motors up to, and including, 3 hp. With this protection the overload may trip out occasionally but, as it resets automatically, the customer is not aware of its operation.

Under exceptionally heavy loads it is possible for these devices to trip out often enough to reduce the average refrigeration output of the condensing unit. This is an added advantage—load limiting action—permitting the equipment to continue functioning even though the conditions of operation are beyond the application limits of the refrigeration equipment. This action is thus somewhat similar to that of the automatic, or gas charged thermostatic, expansion valve.

### 2. High Temperature at Motor or Motor Control

High ambient temperature at motor or motor control may be the cause of overload trip outs as covered in Section 1. High ambient temperature at the motor may cause excessive load on an air cooled condensing unit by its effect on the condenser. At the same time the high ambient affects the motor by reducing the amount of useful load that it should carry. This is apparent when you consider that the limit in loading of a motor is determined by the temperature which cannot safely be exceeded.

If there is no forced air circulation over the motor, as in the case of a water cooled condensing unit for example, the motor temperature will be materially improved by blowing air over the motor. As a temporary expedient an ordinary electric fan is quite effective.

On a water cooled condensing unit the addition of a fan on the motor pulley will be helpful in reducing motor operating temperatures. The air flow need not be nearly as great as that of an air cooled condensing unit—the purpose of the air flow is to wipe the stationary air away from the heated surfaces of the motor and thus increase the rate of heat transfer from these surfaces. Care should be taken to provide an adequate guard for such a fan.

Enclosing a condensing unit, or motor, restricts the flow of cooling air to the motor and thus tends to raise its ambient temperature. In such applications it is desirable that the equipment be selected with a somewhat lighter than usual load on the motor. Such installations should have considerable grilled space for the entrance and exit of air to cool the motor.

When these arrangements are not possible, special means should be provided for removing motor heat. For this purpose the air in the enclosure can be circulated, by a fan, through a water cooled finned coil. Another method is to install air ducts and a blower to force cooling air through the enclosure. Water cooled motors have been used in some enclosed equipments.

Special motors are also obtainable arranged for piping to an outside air supply. These special motors are probably too expensive for general consideration in service work.

## Klopsch Addresses Cincinnati A.S.R.E.

CINCINNATI—Otto Z. Klopsch, vice president and general manager of Wolverine Tube Co., Detroit, was scheduled to discuss "The Copper Situation as it Applies to Refrigeration" before a dinner meeting of the Cincinnati section of American Society of Refrigerating Engineers on Jan. 19 in the Gibson hotel here.

Also to be presented was a sound film, "The Work of the Underwriters' Laboratories," by Wallace V. Trautman, inspector for the Cincinnati district. Displays of new cog belts by Dayton Rubber Mfg. Co. and of refrigeration low sides, controls, and specialties by Peerless of America were to be additional features of the meeting.

Dinner was scheduled for 6:30 p.m., with the meeting proper to start at 8 p.m. J. Craig is chairman of the section's program committee.

## Philco Pledges 'All Possible Production' For Regular Dealers

PHILADELPHIA—Philco's output of household refrigerators, air conditioning equipment, and home and automobile radio receiving sets in 1941 was the largest in the company's history, despite the growing tightness of some raw materials, reports James T. Buckley, president. Increased output, Mr. Buckley said, was largely due to the development of alternate materials and new methods that would achieve desired results.

"Obviously, the manufacture of peacetime products must now take a secondary position until the war is won," he asserted, "but meanwhile it would seem desirable to maintain at least a limited volume of civilian production, for the benefit of the public and to afford all possible support to distributors and dealers who, with their families and employes, are dependent upon this and similar companies for their sole means of livelihood. Philco will continue to do this, insofar as its primary responsibilities to the government may permit."

#### DEFENSE PRODUCTION

While 1941 was a banner year for the company in its radio, refrigerator, and air conditioning business, the most important activity was Philco's large and growing part in the nation's arms production program, Mr. Buckley said. Products that the company is turning out for the government run all the way from communications equipment to storage batteries and artillery fuses, he added.

Early last year the company converted a substantial part of its metal-working equipment to the manufacture of artillery fuses. Within a short time, production and delivery of these fuses surpassed all government schedules.

#### FUSES AHEAD OF SCHEDULE

On Oct. 20 Philco turned out its 1,000,000th fuse. On Dec. 22, 73 days ahead of schedule, deliveries were completed on the first fuse order, and work was immediately started on several other orders which were substantially larger in amount. The M-48 fuse is used in ammunition for 75 mm. field guns, 75 mm. howitzers, 3 inch seacoast guns, and 105 mm. howitzers.

Philco has also been playing an essential part in equipping American industry for "all-out" war production by the manufacture of heavy-duty storage batteries, Mr. Buckley said. At the present time, the battery division is operating 88% for the war effort.

Philco is rapidly stepping up the output of various types of communications equipment for the nation's armed forces, he declared. Present indications are that the government plans to call upon the radio manufacturing industry to begin production of an additional $1,000,000,000 worth of communications equipment in the next few months.

## Govt. Seeks Plumbers And Steamfitters For Civil Service Jobs

WASHINGTON, D. C.—The U. S. Civil Service Commission has announced that it is seeking qualified plumbers and steamfitters to be appointed to government service from civil-service employment lists. The positions pay $1,680 a year. Applicants will not be required to pass a written test, but will be rated on the extent and quality of their experience.

Applicants must have completed a four-year apprenticeship or have had equivalent experience, and must be between the ages of 20 and 55 years, in addition to meeting certain physical requirements.

A copy of the examination announcement and application forms may be obtained from any first or second-class post office, or from the commission's central office in Washington. Applications must be on file with U. S. Civil Service Commission, Washington, D. C., not later than Feb. 5, 1942.

# The Service Man's Notebook

By Henry Kronke

Mr. Kronke, a service engineer in New York City, compiles useful, handy data for use in his work as he finds a repeated need for certain kinds of information. The editors suggest that service and installation engineer readers of the NEWS cut these tables out for their own notebooks.

## PRESSURE SWITCH SETTINGS FOR VARIOUS EVAPORATORS

The following tables give some general cut-in and cut-out pressures for low pressure controls used on various types of refrigeration coils. A pressure drop of 2 lbs. gauge has been included in the cut-out pressure.

Since the same size coil in different installations will be subject to different loads, it is obvious that the recommended pressure cannot be correct in every case. They are presented here only as a guide and the resultant temperature should always be checked.

### PRESSURE SWITCH SETTINGS FOR BARE PIPE COILS AND PLATE COILS

| Temp. Req. | "Freon-12" | Methyl Chloride | Sulphur Dioxide |
|---|---|---|---|
| —20° | 2 in. —17 in. | 8 in. —20 in. | |
| —10° | 2 lbs.—12 in. | 3 in. —17 in. | |
| — 5° | 5 lbs.— 9 in. | 0 lbs.—15 in. | |
| 0° | 7 lbs.— 6 in. | 2 lbs.—12 in. | |
| 5° | 9 lbs.— 3 in. | 4 lbs.—10 in. | 9 in. —20 in. |
| 10° | 12 lbs.— 1 lb. | 6 lbs.— 7 in. | 6 in. —18 in. |
| 20° | 18 lbs.— 5 lbs. | 11 lbs.— 0 lbs. | 1 lb. —14 in. |
| 30° | 25 lbs.—10 lbs. | 17 lbs.— 4 lbs. | 5 lbs.—10 in. |
| 35° | 28 lbs.—13 lbs. | 20 lbs.— 7 lbs. | 7 lbs.— 7 in. |

### PRESSURE SWITCH SETTINGS FOR TUBE COIL IN STILL LIQUID

| Liquid Temp. | "Freon-12" | Methyl Chloride | Sulphur Dioxide |
|---|---|---|---|
| —10° | 2 lbs.— 6 in. | 3 in. —12 in. | |
| 0° | 7 lbs.— 0 lbs. | 2 lbs.— 7 in. | 11 in. —20 in. |
| 10° | 12 lbs.— 5 lbs. | 6 lbs.— 0 lbs. | 6 in. —15 in. |
| 20° | 18 lbs.—10 lbs. | 11 lbs.— 5 lbs. | 0 lbs.—10 in. |
| 30° | 25 lbs.—16 lbs. | 17 lbs.—10 lbs. | 5 lbs.— 2 in. |
| 35° | 29 lbs.—19 lbs. | 21 lbs.—12 lbs. | 7 lbs.— 1 lb. |
| 40° | 33 lbs.—23 lbs. | 24 lbs.—15 lbs. | 10 lbs.— 3 lbs. |
| 45° | 37 lbs.—27 lbs. | 28 lbs.—19 lbs. | 12 lbs.— 5 lbs. |
| 50° | 41 lbs.—31 lbs. | 32 lbs.—22 lbs. | 15 lbs.— 8 lbs. |
| 60° | 52 lbs.—35 lbs. | 42 lbs.—26 lbs. | 22 lbs.—11 lbs. |
| 70° | 63 lbs.—45 lbs. | 52 lbs.—35 lbs. | 30 lbs.—17 lbs. |

### PRESSURE SWITCH SETTINGS FOR BRINE TANKS

| Brine Temp. | "Freon-12" | Methyl Chloride | Sulphur Dioxide |
|---|---|---|---|
| —20° | 0 lbs.—15 in. | 7 in. —19 in. | |
| —10° | 4 lbs.— 9 in. | 1 in. —15 in. | |
| — 5° | 6 lbs.— 6 in. | 1 lb. —12 in. | |
| 0° | 8 lbs.— 3 in. | 3 lbs.—10 in. | 10 in. —22 in. |
| 5° | 11 lbs.— 1 lb. | 5 lbs.— 7 in. | 7 in. —20 in. |
| 10° | 13 lbs.— 3 lbs. | 7 lbs.— 4 in. | 4 in. —18 in. |
| 15° | 16 lbs.— 5 lbs. | 10 lbs.— 0 lbs. | 1 in. —15 in. |
| 20° | 19 lbs.— 8 lbs. | 13 lbs.— 2 lbs. | 2 lbs.—13 in. |
| 25° | 23 lbs.—10 lbs. | 16 lbs.— 4 lbs. | 4 lbs.—10 in. |
| 30° | 27 lbs.—14 lbs. | 19 lbs.— 7 lbs. | 6 lbs.— 7 in. |

## New Penn Catalog On Calibrated Controls

GOSHEN, Ind.—A new bulletin containing complete information on refrigeration controls with calibrated dials has just been issued by Penn Electric Switch Co. This six-page bulletin covers the company's 1265 Series controls, for pressure and temperature applications.

The bulletin incorporates large illustrations showing both the exterior and interior views of the controls, and short descriptive paragraphs. Complete specifications and several optional features are given, together with various types of available mounting brackets. Copies of the bulletin (R-1265) are available from the company.

## *OPM Warns of Dearth Of Food Containers*

NEW YORK CITY — Although there is no impending food shortage, OPM officials meeting here last week with food and beverage manufacturers conceded that there will be a scarcity of supplies for packaging, forwarding, and distributing food and drink products.

"This meeting hasn't been called because there is any impending food shortage," declared Sydney Hogerton, New York district manager of the OPM priorities division. "I think there is plenty of food. But there is a shortage of supplies which you will need to package it, to forward it, to distribute it. That's where the impact is going to come."


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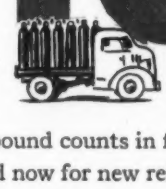

★ Steel is precious. Every pound counts in filling vital Victory needs. Little can be allocated now for new refrigerant cylinders. You can help Ansul and *all* manufacturers by returning empty cylinders at once . . . by keeping every cylinder *at work*. In doing this, you help the Nation, help yourself, and help your customers. Keep every cylinder on the job—all the time!

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HELP YOUR JOBBER HELP US KEEP 'EM ROLLING!


# *Big Called - For Increase In Perishable Foods May Boost Use of Refrigeration*

## Dept. of Agriculture Emphasizes Need of 'Local' Storage Plants

WASHINGTON, D. C.—Increasing necessity for commercial refrigeration equipment to protect America's supply of perishable foodstuffs in 1942 is indicated by the greatly accelerated production goals established for this year by the Department of Agriculture to help this nation and her allies win "the battle of food."

Today's emergency food requirements, as given in the table on this page, are for vitamin foods that build courage and bone and nerve. From an economic standpoint, these are the foods from which the farmer receives a continuous income day after day throughout the year.

Agricultural planners long have advocated diversified farming, based largely on more general production of these same products, which tend to make the farm nutritionally self-sufficient. According to the Department of Agriculture's program, one of the two ways of achieving this increased production is through "better handling and processing" of existing production—in which refrigeration is of major importance.

Production of more milk, eggs, meat, and vegetables has a solid basis in the present and continuing food requirements of the country, the Department of Agriculture believes. The increased production of such products, it is pointed out, will put the people of the United States on an adequate and proper diet. At present, it is said, at least 90 million people in this country, either from low incomes or poor food habits, do not eat enough of these foods.

Under a production program such as that advocated, it is pointed out, "dairy products, poultry, and vegetables will become basic crops."

This in turn points to an added necessity for refrigeration equipment for the processing and storage of such commodities, both on the farm itself and in communities near which any considerable amount of agricultural production is concentrated.

Use of milk cooling equipment, for instance, will enable the farmer to get a larger percentage of his milk to market.

Also, the farmer's market can be brought closer to the farm through the establishment of food processing centers in many rural communities. Losses from spoilage, as well as losses in time spent going to and from the market places, can be greatly reduced by such developments, important among which is the cold storage locker plant.

Patrons of one locker plant in Ohio report that when they butchered and cured their meat on the farm, losses from spoilage often used to run as high as 25%. Electric refrigeration, they say, has reduced this loss to nothing.

Saving 25% of four 200-pound hogs, it is pointed out, is the same as increasing production by one 200-pounder, not to mention the saving on feed for the extra porker. This is real conservation, and can be accomplished without unnecessarily large expenditures for farm plant expansion, or equally important, without requiring additional farm labor.

### Defense Agricultural Goals For 1942, Estimated 1941 Production, and Average Production For 1936-40

| Commodity | Unit | 1936-40 Average | 1941 Estimated | 1942 Expected Production |
|---|---|---|---|---|
| **Milk and Eggs** | | | | |
| Milk | Billion Lb. | 106.6 | 116.8 | 125.0 |
| Eggs | Billion Dozen | 3.4 | 3.7 | 4.0 |
| **Meat Animals** | | | | |
| Hogs | Million Slaughtered | 63.2 | 71.0 | 79.3 |
| Beef and Veal | " | 24.8 | 25.1 | 28.0 |
| Chickens | " | 644.0 | 680.0 | 750.0 |
| Lamb and Mutton | " | 21.9 | 22.4 | 22.9 |
| **Vegetables** | | | | |
| Commercial Vegetables: | | | | |
| Fresh Use | Million Acres | 1.8 | 1.8 | 1.9 |
| Processed | " | 1.3 | 1.5 | 1.5 |
| Farm Gardens | Million Farms | ... | 4.4 | 5.8 |
| **Fruits** | | | | |
| Citrus Fruit | Million Tons | 4.8 | 5.2 | (2) |
| Deciduous: | | | | |
| Fresh Use | Million Tons | (1) 9.0 | (1) 9.6 | (2) |
| Canned | Million Cases | 28.3 | 33.0 | (2) |
| Dried | Million Tons | .55 | 0.6 | (2) |

(1) Total fresh production for all uses, except that non-commercial apples are not included.

(2) Since fruit production cannot be quickly increased, emphasis will be on better distribution and prevention of waste.

## Replacement Parts Rationing Predicted For Auto Field

DETROIT—Preciction that a rationing system similar to the tire-allocation program would be put into effect on every replacement part needed to keep private cars and commercial vehicles on the road was made by Herbert Hughes, engineer of the Automobile Manufacturers Association, before a forum on salvage for defense at the annual meeting of the Society of Automotive Engineers.

This prediction, if fulfilled, might mean that rationing would also be extended to replacement parts for refrigerators and other major appliances.

Mr. Hughes said that tire rationing was perhaps only the first step in the nation's plan to put its maximum effort into production for war.

"Quotas of replacement parts, such as the tire-allocation program, will soon be issued on every replacement part needed to keep cars and trucks on the road," he declared. "In thousands of instances, parts other than tires may prove to be the determining factor as to whether cars can or cannot be operated."

Mr. Hughes pointed out that "when automobile plants close down car production and retool for arms output, they will have no machinery to make parts." During normal times, replacement part manufacture and new car production go hand in hand, he said.

Operators of commercial fleets and motor transportation lines will have preference over the average motorist in obtaining permission to buy new parts, unless the OPM changes current plans, Mr. Hughes said.

Two methods of conserving automotive parts were suggested by William J. Cumming, engineer of Surface Transportation Co., New York City. First method entails the spraying of hot metal on worn parts, and the second the welding of a layer of metal on moving parts which have been worn down below peak efficiency.

He said his company and many other garages had found both of these practices effective answers to parts shortages. By repeating these processes, many worn parts can be kept up to size indefinitely, he said.

THERE'S PLENTY TO DO *in '42*

"FOOD is a whole arsenal of weapons in this struggle for human freedom—food will win the war and write the peace," says Secretary of Agriculture Claude R. Wickard.

—and so, refrigeration has its big part to play in the Victory program, to save food from spoiling; to keep it healthful and palatable, for the men in the services, and for the men, women and children on the vital home front.

You men, in particular, who service commercial refrigeration installations are called upon to do your utmost to "keep 'em running" efficiently day in, day out. And it's not a simple job, with shortages of needed materials and long delays on orders.

In support of your vital job, Penn pledges to do its utmost to supply needed controls and to furnish them with reasonable promptness. Our armed forces naturally have first call on our facilities—but we are determined to serve the needs of the refrigeration industry as fully and as promptly as possible. So . . . remember, you can depend on Penn again in '42 for efficient refrigeration controls.

*Penn Electric Switch Co., Goshen, Indiana*

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FOR REFRIGERATION, AIR CONDITIONING. HEATING, PUMPS, AIR COMPRESSORS.

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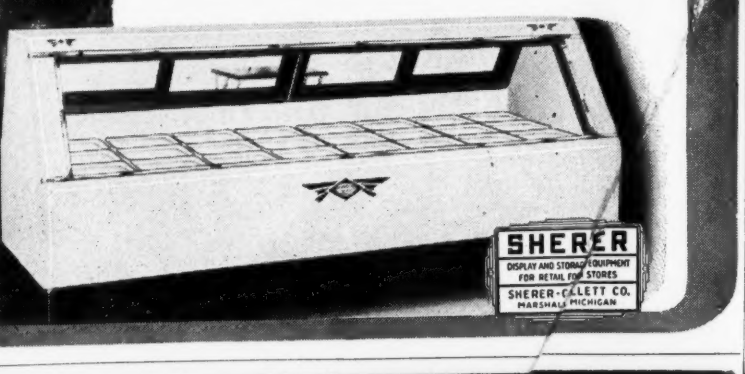


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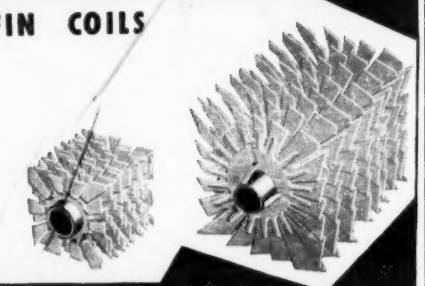

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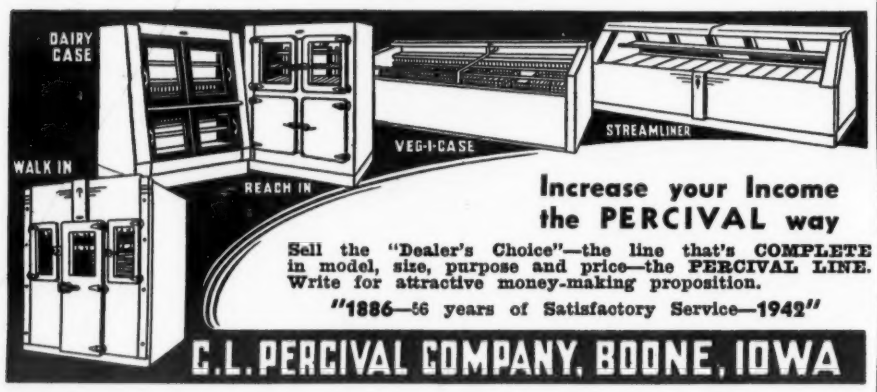
REFRIGERATION *Control*

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REFRIGERATION PRODUCTS

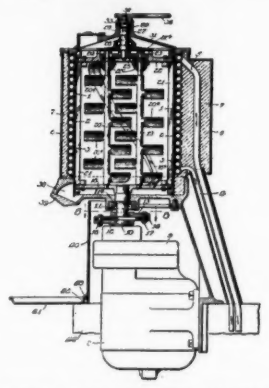
*See Your Jobber or Write Direct*

LARKIN COILS, INC.
519 MEMORIAL DR., S. E., ATLANTA, GA.


# PATENTS

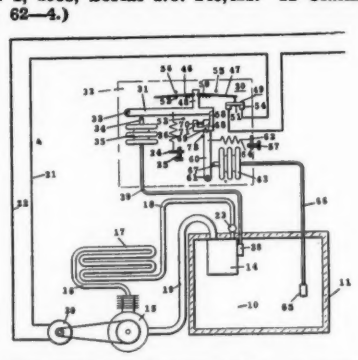
## *Weeks of Dec. 23 & 30*

**2,266,766. DEVICE FOR FREEZING LIQUIDS. James S. Knight, Chicago, Ill. Application Feb. 6, 1933, Serial No. 655,383. Renewed Sept. 28, 1939. 3 Claims. (Cl. 62—114.)**



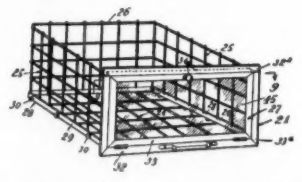
1. A device for freezing liquids comprising a receptacle for the liquid, a discharge opening for said receptacle, a fixed part below said opening, an outwardly projecting supporting piece on said fixed part, a tray having an upstanding edge and adapted to be tilted to place the upstanding edge under said supporting piece so that the tray will be held in horizontal position below said discharge opening.

**2,266,799. CONTROL SYSTEM. Roy E. Raney, Columbus, Ohio, assignor to Ranco, Inc., Columbus, Ohio. Application Dec. 1, 1938, Serial No. 243,422. 11 Claims. (Cl. 62—4.)**



1. The method of controlling the operation of a cyclically operated refrigerating system for cooling a medium which comprises initiating the cooling phase of the heat absorber solely in response to a temperature of the heat absorber, and terminating the cooling phase of the heat absorber when the temperature of the heat absorber has reached a predetermined lower temperature if the medium is below a predetermined temperature but preventing the termination of the cooling phase when the temperature of the medium is above the last mentioned predetermined temperature until the temperature of the medium to be refrigerated attains a predetermined temperature.

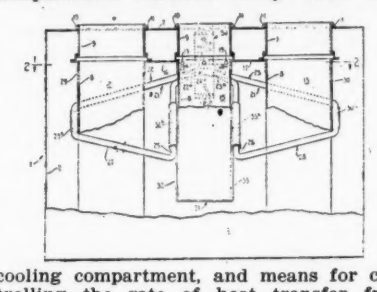
**2,266,857. REFRIGERATOR. Forrest S. Field, Crafton, Pa. Application July 19, 1939, Serial No. 285,321. 1 Claim. (Cl. 45—7.)**



A food container for a refrigerator comprising a body formed of woven wire and open at its top and front end, a frame for the open front end of said body open at its top and having a lower cross bar secured along the front edge of the bottom of the body and side bars secured along front edges of side walls of the body, said bars having marginal portions projecting from the body to provide outstanding abutment flanges for the body.

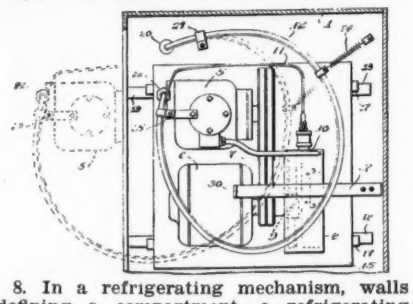
**2,266,965. REFRIGERATING APPARATUS. Lewis W. Eggleston, Davison, Mich., assignor to Detroit Lubricator Co., Detroit, Mich., a corporation of Michigan. Application Feb. 27, 1939, Serial No. 258,597. 23 Claims. (Cl. 62—101.)**

1. In a refrigerating apparatus, a cooled compartment, a plate-like member having a high thermal conductivity, a cooling compartment spaced from said cooled compartment, heat transfer means including a heat transferring liquid medium connecting a bottom portion of said cooling compartment to said plate-like member, said plate-like member being on the top portion of the wall of said cooled compartment furthest away from said



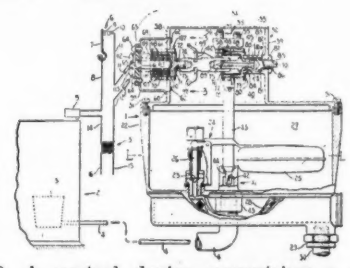
cooling compartment, and means for controlling the rate of heat transfer from said cooled compartment to said cooling compartment.

**2,266,970. REFRIGERATING APPARATUS. William W. Higham, Detroit, Mich., assignor to Universal Cooler Corp., Detroit, Mich., a corporation of Michigan. Application Aug. 18, 1939, Serial No. 290,735. 8 Claims. (Cl. 62—116.)**



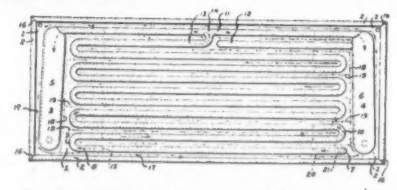
8. In a refrigerating mechanism, walls defining a compartment, a refrigerating unit including refrigerant liquefying means, means mounting the unit so that it may be shifted relative to the compartment to and from an operating position and a position for service or repair or the like, a refrigerant tube line, means fixedly securing the tube line adjacent one of the walls, means fixedly securing the tube line to a part of the unit, one end of the tube line connecting to the unit, said tube line between the said securing means having the formation of a single loop.

**2,266,975. CONTROL DEVICE. Walter S. Landon, Detroit, Mich., assignor to Detroit Lubricator Co., Detroit, Mich., a corporation of Michigan. Application Feb. 16, 1939, Serial No. 256,762. 10 Claims. (Cl. 236—68.)**



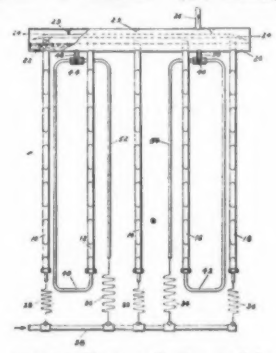
9. A control device comprising a controlling means, a temperature responsive element operable to move said controlling means, a second responsive element inherently exerting a greater force than said first-named responsive element for all equal temperatures acting on said elements, said second temperature responsive element holding said controlling means against movement by said first-named responsive element, and means to heat said first-named responsive element to a temperature to overcome the greater force of said second responsive element, and move said controlling means.

**2,266,983. EVAPORATOR. Roland H. Money, Cincinnati, Ohio, assignor to The Crosley Corp., Cincinnati, Ohio, a corporation of Ohio. Application Feb. 24, 1938, Serial No. 192,248. 2 Claims. (Cl. 62—126.)**



1. An evaporator comprising a pair of opposed plates welded together at the edges thereof, a pair of matched indentations in said plates at the ends thereof forming headers, therein, one plate having an indentation therein forming a passageway communicating with said headers and extending back and forth across the surface thereof and having reverse bends adjacent the headers and welds uniting said plates and extending parallel to said indentation, said welds beginning at alternate ends of said plate adjacent said headers and terminating adjacent the opposite ends within said reverse bends.

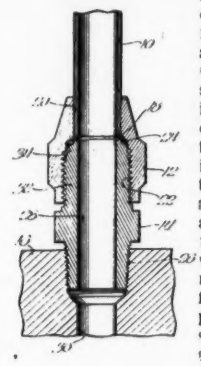
**2,267,152. CONTROL APPARATUS FOR EVAPORATING COILS. Ernest Gygax, St. Louis, Mo., assignor to Curtis Mfg. Co., Wellston, Mo., a corporation of Missouri. Application May 5, 1941, Serial No. 391,949. 3 Claims. (Cl. 62—8.)**



1. An evaporating coil for refrigeration systems having a plurality of sections, tubing connecting the inlet end of at least one of the said sections of the evaporating coil with the high pressure line from the compressor of the said system, a capillary in said tubing to meter the refrigerant flowing from the high pressure line to the said section, said capillary being dimensioned to provide the said section with sufficient refrigerant to keep the section "flooded" at all times, a liquid trap, tubing connecting the outlet end of the said section with the said liquid trap.

**2,267,416. FLARED FITTING. Frank Neukirch, Chicago, Ill., assignor to The Imperial Brass Mfg. Co., Chicago, Ill., a corporation of Illinois. Application Dec. 18, 1939, Serial No. 309,853. 2 Claims. (Cl. 285—86.)**

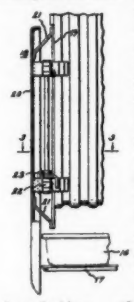
1. In a coupling for flared tubing having



an initially flared end with continuous flat flares on both sides thereof of substantially the same shape as in the finished coupling, the combination of a female member having a passage therethrough for tubing, a male member adapted to be threadably engaged with the female member, an annular flat tapered male portion in one of said members, and an annular flat tapered female portion in the other member substantially parallel to the said male portion throughout its length in contact with one side of said flare throughout the length of said flared portion forming thereby an annular frusto-conical pocket closed at the outer end.

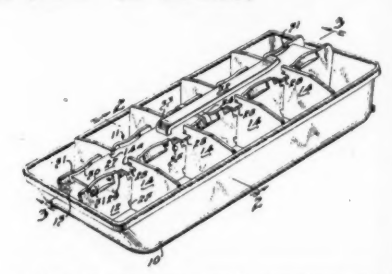
**2,267,432. REFRIGERATOR. Carl R. Steenstrup, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application April 24, 1940, Serial No. 331,441. 6 Claims. (Cl. 62—89.)**

1. In a refrigerator having a cooling compartment and a door for closing the



access opening thereto, a cooling element disposed in said compartment and having an opening at the front thereof, a door assembly associated therewith, said assembly comprising a substantially imperforate inner member constructed and arranged for closing said opening and an outer member spaced from said inner member, said members being constructed and arranged for permitting air circulation therebetween whereby said outer member is maintained at a temperature above the dewpoint of said air.

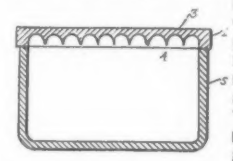
**2,267,439. AUTOMATIC ICE TRAY. Clifford R. Carney, Detroit, Mich. Application June 17, 1940, Serial No. 340,906. 16 Claims. (Cl. 62—108.5.)**



1. An ice tray and grid structure which comprises an ice tray, a grid in said tray comprising a pair of generally vertically disposed longitudinal members and a plurality of generally vertically disposed transverse members mounted thereon, a movable member carried by said grid for lengthwise movement relative to said longitudinal members, said movable member and said longitudinal members being provided with normally interfitting projecting and recessed portions, and a lever carried by said longitudinal members and operably associated with said movable member for moving it relative to said longitudinal members to misalign said projecting and recessed portions for moving said longitudinal members laterally to release ice from the grid and tray structure.

**2,267,486. HYDRATOR. John B. West, New York, N. Y. Application Sept. 24, 1940, Serial No. 358,060. 2 Claims. (Cl. 62—89.)**

1. A hydrating device for refrigerators,



comprising a receptacle, and a plate covering the receptacle, said plate having one side thereof formed with a plurality of elongated grooves, the walls of adjacent grooves merging into sharp ridges, said grooved side being directed towards the interior of the receptacle.

*(Concluded on Page 11, Column 1)*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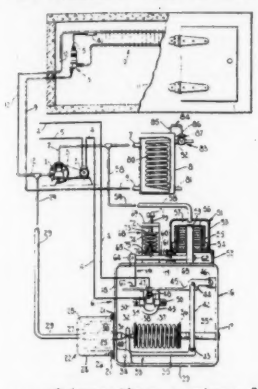
# Patents (Cont.)

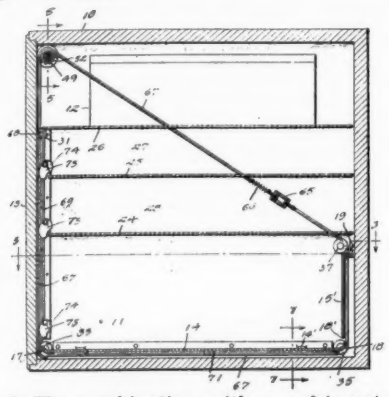
(Concluded from Page 10, Column 5)

**2,267,607. REFRIGERATING APPARATUS. William J. Harvey, Detroit, Mich., assignor to Detroit Lubricator Co., Detroit, Mich., a corporation of Michigan. Application March 8, 1939, Serial No. 260,601. 14 Claims. (Cl. 62—4.)**



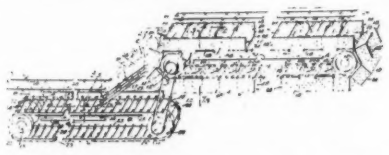
1. In a refrigerating system having a liquid-cooled condenser, means to supply warm refrigerant medium to the condenser, and means operable to render said supply means effective upon a decrease of condenser temperature to a temperature below normal condenser operating temperature but above a subnormal condenser temperature which would cause freezing of the condenser liquid thereby to avoid deleterious effects on the condenser.

**2,267,664. REFRIGERATOR. Samuel A. Myers, Pittsburgh, Pa. Application Oct. 31, 1939, Serial No. 302,222. 6 Claims. (Cl. 312—190.)**



1. The combination with a refrigerator having a storage compartment provided with an open vertical side and a door to close the said open side, of an inner flexible closure element, endless belts arranged at each side of the compartment and having one run extending vertically from the top to the bottom thereof, roller members supporting the *belts*, resilient means cooperative with the said belts for normally holding the said closure element in an extended position relative to the open side but permitting the same to be moved across the opening to expose a selected portion of the compartment.

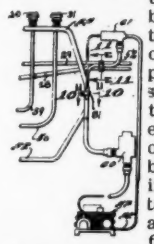
**2,267,789. APPARATUS FOR FREEZING FOOD PRODUCTS. Chester J. Conn, Smithtown Branch, N. Y. Application March 15, 1939, Serial No. 261,918. 6 Claims. (Cl. 62—104.)**



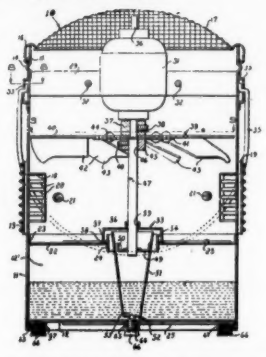
6. A method of freezing food products in a chamber supplied with refrigerant, which consists in conveying deformable food products in two stages through the chamber in which fluid refrigerant is discharged, the food products being maintained in molds during the first stage for surface freezing into self sustaining condition, and being released from the molds and conveyed as released free of the molds and in self sustaining condition for deep freezing during the second stage, the respective stages being continuous.

**2,267,819. REFRIGERATION APPARATUS. Carmelo V. Di Pietro, Birmingham, Mich. Application May 31, 1938, Serial No. 210,807. 13 Claims. (Cl. 62—141.)**

1. A liquid cooler comprising two tubes telescopically associated to form two separate closed chambers, a refrigerating system connected with the outer chamber, a dispensing drinking liquid system connected with the inner chamber, a tube extending spirally in the outer refrigerant chamber, said spirally extending tube thermally contacting said telescopically associated tubes and defining therewith a spiral refrigerant passageway through the outer chamber, and a liquid dispensing system connected with the interior of the spirally extending tube.

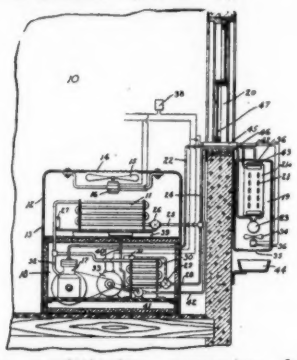


**2,267,835. AIR CONDITIONER. William A. Norris, Alhambra, Calif., assignor to William H. Fabry and Rae H. Fabry, both of Alhambra, Calif., as joint tenants. Application Aug. 6, 1940, Serial No. 351,605. 4 Claims. (Cl. 261—30.)**



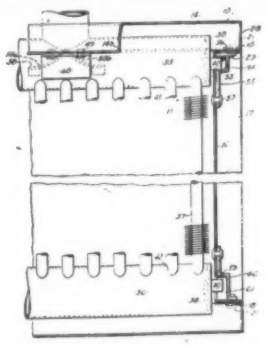
1. In an evaporative cooler, a housing having a closed bottom and an inlet and having an intermediate partition having an aperture therein, a motor mounted within said housing and having a depending shaft extending through the aperture in said partition, a truncated cone mounted on said shaft, the larger end of said cone being upward, the lower end of said cone being apertured, a raised rim around the central aperture in said portion, a shield member disposed around said rim and comprising a cylindrical portion secured to said partition and spaced from said rim and including a top having an aperture through which said shaft passes.

**2,268,186. AIR CONDITIONING APPARATUS. Robert R. Candor, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application July 19, 1934, Serial No. 736,017. 8 Claims. (Cl. 62—6.)**



6. Air conditioning apparatus for a room or the like comprising a refrigerant evaporator, means for thermally contacting air to be conditioned for said room with said evaporator, a refrigerant liquefying unit connected in refrigerant flow relationship with said evaporator, said unit including a refrigerant translating device located in said room and a heat dissipating means located outside of said room, and means to transfer moisture condensed on said evaporator to a spray-head located above said heat dissipating means.

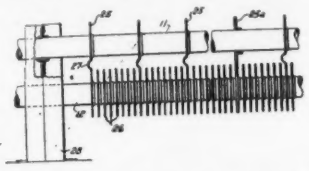
**2,268,360. HEAT EXCHANGE APPARATUS. Edmund R. Walker, Kenmore, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y. Application June 28, 1940, Serial No. 342,892. 3 Claims. (Cl. 257—136.)**



2. In a heating device, a casing, a heating unit within the casing, said unit including spaced upper and lower cylindrical headers and parallel tubes connecting the headers, said casing having offset recessed portions for partially receiving said headers, cylindrical pintles projecting from the ends of both headers, bearings on the casing for slidably and rotatably receiving the pintles of the upper header, said casing also having vertically slotted members for receiving the pintles of the lower header.

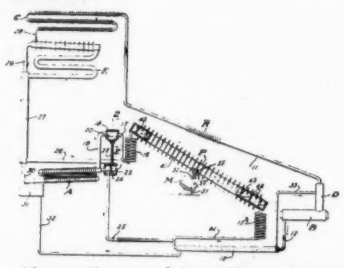
**2,268,361. HEAT EXCHANGE APPARATUS. Edmund R. Walker, Kenmore, and Sidney A. Whitt, Buffalo, N. Y., assignors to Fedders Mfg. Co., Inc., Buffalo, N. Y. Application Aug. 11, 1941, Serial No. 406,260. 8 Claims. (Cl. 257—134.)**

1.A heat exchange coil comprising a plurality of rows of tubing adapted to receive working fluid, said rows being provided with inlet and outlet ends, means for selectively admitting the working fluid to all, or to less than all, of said rows, common indirect heat ex-



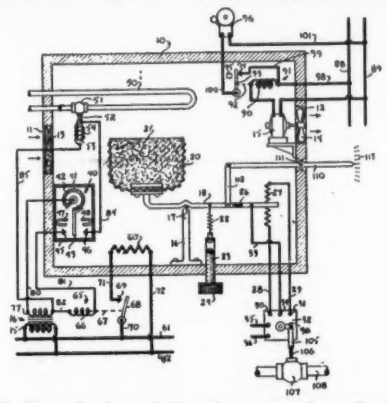
change surface thermally connected to all of said rows, and an additional amount of indirect heating surface thermally connected to less than all of said rows, whereby, upon admission of working fluid to less than all of said rows.

**2,268,381. REFRIGERATION. George A. Brace, Winnetka, Ill., assignor to The Hoover Co., North Canton, Ohio, a corporation of Ohio. Application Jan. 3, 1938, Serial No. 182,982. 22 Claims. (Cl. 62—119.)**



1. Absorption refrigerating apparatus comprising a boiler, an absorber, an evaporator, pumping means for elevating weak solution from said boiler to a higher elevation, power-operated means for driving said pumping means, a gas chamber connected to receive gas from said absorber and liquid from said pumping means, a plurality of liquid operated gas pumps connected to said chamber, means for dividing liquid supplied to said chamber between said gas pumps.

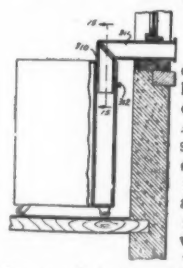
**2,268,442. DEWPOINT INDICATOR AND CONTROLLER. Robert B. P. Crawford, Miami, Fla., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application March 10, 1938, Serial No. 195,178. 11 Claims. (Cl. 236—44.)**



8. In a device of the character described, a chamber, said chamber having an inlet and an outlet for facilitating the flow of air through said chamber, cooling means in said chamber, heating means in said chamber, means responsive to the temperature within said chamber for controlling said cooling means and heating means to maintain said temperature at a substantially constant value, means within said chamber, having hygroscopic properties, and means movable in response to variations in the weight of said hygroscopic means.

**2,268,451. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Dec. 31, 1938, Serial No. 248,679. 1 Claim. (Cl. 62—129.)**

In a room cooling unit, a main cabinet, air cooling apparatus mounted within said cabinet, an airflow passage within said cabinet, an air duct having a first portion communicating with said passage and a second portion normally projecting from said cabinet at an angle to said first portion, and means whereby both portions of said duct may be



telescoped into said passage.

## PATENTS

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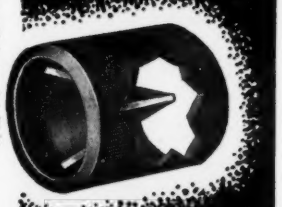

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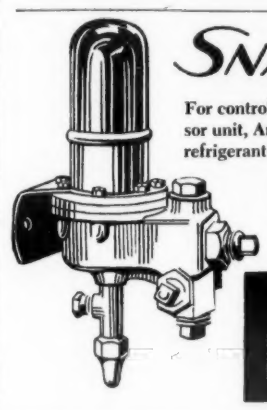

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# Method of Extending Priority Ratings Is Simplified By OPM

WASHINGTON, D. C.—In an order issued Jan. 12, the Priorities Division of the Office of Production Management has arranged to simplify considerably the procedure under which preference ratings may be extended to suppliers and sub-suppliers of the producer who received the rating.

After Feb. 2, according to the order, known as Priorities Regulation No. 3, a producer needs simply to endorse the rating he has received upon purchase orders, in a manner similar to that now used for extension of limited blanket ratings and ratings under the Production Requirements Plan.

Under an arrangement between the Director of Priorities and the Army and Navy Munitions Board, ratings assigned by Army and Navy field officers will no longer be limited to items appearing on the Army and Navy Priorities Critical List. However, under Regulation No. 3, extension of individual ratings will be limited to material which will be physically incorporated in the items originally rated.

### TWO NEW FORMS

Two new forms of preference rating certificates, PD-1A and PD-3A, will replace the present forms, PD-1 to PD-5 inclusive, for assignment of individual ratings. Use of the new forms will be optional on and after Feb. 2, and mandatory on and after March 1.

Form PD-1A, which will replace Form PD-1, is a simplified blank to be used in making specific applications for materials or supplies when general preference orders do not provide the required priority assistance. When PD-1A applications are approved by the OPM Priorities Division, ratings will be assigned on the form itself. A similar procedure has been standard for some months.

Preference ratings assigned to applicants who use Form PD-1A may be extended on and after Feb. 2 to suppliers and sub-suppliers of the applicant by the prescribed endorsement on purchase orders, signed by a duly authorized representative of the company making the extension, and will not require a countersignature from any government officer. Heretofore, preference ratings assigned on PD-1 forms have not been extendable under any circumstances.

Form PD-3A will be used for all applications for ratings in connection with orders from the Army, Navy, Coast Guard, Maritime Commission, Coast and Geodetic Survey, Panama Canal, National Advisory Committee on Aeronautics, Civil Aeronautics Authority, Office of Scientific Research and Development, Procurement Division of the Department of the Treasury, Surplus Marketing Administration of the Department of Agriculture, and contracts or purchase orders from foreign governments. It will replace Forms PD-3, PD-4, and PD-5.

### COUNTERSIGNING OUT

Ratings assigned on Form PD-3A may also be extended to suppliers and sub-suppliers without countersignature. Ratings which have been assigned on PD-3 forms were formerly extendable without countersignature only if the amount of the order involved was less than $500.

Another important change made by Priorities Regulation No. 3 allows the recipient of an individual rating, his suppliers, and sub-suppliers to employ the rating for replacement in inventory of materials used in filling the rated order, provided such replacement does not increase inventories above a practicable working minimum.

If the materials to be replaced are in whole or in part manufactured, processed, assembled, or otherwise physically changed by the supplier, the rating must be extended while the materials are in process of fabrication. For materials which are not processed or otherwise changed by the supplier, extension of the rating may be deferred up to three months, until an order can be placed for the minimum quantity procurable on customary terms. This provision is primarily for the benefit of wholesalers and distributors, enabling them to group their own orders while making deliveries in small quantities.

# *Price Administrator To Get Regional Offices; Bogardus Heads One*

WASHINGTON, D. C.—A step in the broadening of activities carried out by the Office of Price Administration was taken last week with the appointment of seven regional price executives.

These men will serve in the regional offices which have been or will be opened in the field by the Office of Price Administration. The appointments were announced by J. K. Galbraith, assistant administrator of OPA.

The regional price executives will be in charge of all activities in the regional offices relating to the development of price policies and will represent the commodity divisions of OPA in the field. They will also supervise investigations and collection of information necessary for price action. An important part of their duties will be to handle explanations of price actions to business men in each area.

### Directors of Offices In Six Main Areas

The men who have been appointed to these positions and the cities in which they will be located follow:

New York City: James F. Bogardus, formerly price executive in charge of the consumers durable goods section, OPA. His home is in Swarthmore, Pa.

Atlanta: R. Preston Brooks, dean of the College of Business Administration, University of Georgia. His home is in Athens, Ga.

Dallas: Emmet Redford, professor of government, University of Texas. His home is in Austin, Tex.

Kansas City: Jonathan Richards, formerly senior administrative officer of the price division and formerly with the Home Owners Loan Corp. His home is in Washington.

Chicago: George Benson, professor of government, Northwestern university; formerly consultant to the OEM personnel section. His home is in Chicago.

Boston: Frank Beane, associate price executive of the iron and steel productions section, price division, OPA, who has been detailed from the Washington office.

San Francisco: Norman Buchanan, professor of economics, University of Calofirnia. His home is in Berkeley.

## Tom Plouff Returns To Ansul Mid-Central Area

MARINETTE, Wis. — Replacing Leonard Wright, Jr., who has been called to active military service, Tom Plouff has returned as district manager of Ansul Chemical Co.'s north-central territory, with his headquarters in Des Moines, Iowa.

Mr. Plouff, formerly manager of the north-central area for Ansul, lately has been assistant sales manager of the Dugas Engineering Co., a dry powder fire extinguisher company owned and operated by Ansul Chemical Co.

## Bureau Drops Advertising, Plans Local Promotion

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ances, designed for use by utilities, will help to keep the idea of electric cooking alive in the public mind.

This material will consist of layout and copy suggestions on different advertising themes in keeping with the times, and suggestions for displays, posters, direct mail, radio commercials, etc., for well-rounded local programs to be mailed at intervals through the year.

The electric kitchen and electric water heater programs of the bureau will continue as originally planned, according to W. A. Grove, chairman of the bureau's plan committee and advertising manager, Edison General Electric Appliance Co., Inc.

## Voss Changes Companies

DALLAS, Tex.—M. W. Voss, formerly associated with the sales staff of Electromotive Corp., refrigeration jobber here, has joined the sales staff of Refrigeration Supply Co.

# U. S. Aid In Form of Price Premiums And Loans Is Promised To Mines

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should come from nearly all producing districts in the United States.

The program involves:

(1) Payments by Metal Reserve Co. (subsidiary of the Reconstruction Finance Corp.) of premium prices, substantially higher than the ceiling prices, for any production of these metals in excess of quotas. These premium prices will be 17 cents per pound for copper, 11 cents for zinc, and 9¼ cents for lead; and maintenance of these prices for over-quota production will be assured for a period of two and a half years, beginning Feb. 1, 1942.

(2) An increase from 5.85 cents to 6.50 cents a pound, New York, in the ceiling price for lead. There is no change in the ceiling price of 8¼ cents per pound, East St. Louis, for zinc, or in the 12 cents per pound ceiling price for copper. Price schedules will be issued by OPA establishing a maximum base price of 6.50 cents on primary lead and also establishing ceiling prices for secondary lead, bearing the proper relation to the 6.50-cent price for primary lead.

In general, the quotas assigned to companies now already producing any of these metals will be based on their output in 1941. Production in excess of these quotas and production from companies not now operating will for the most part be eligible for the premium prices, and will, in general, represent higher cost metals which would otherwise not be produced. Thus, the premium price arrangement continues the principle of differential prices for low and high-cost production heretofore followed by the Office of Price Administration.

Owing to marked differences between companies with respect to conditions of production and recent rates of increase in output, some companies will be assigned higher quotas specially fixed on the basis of outputs which can reasonably be expected at the ceiling price of 12 cents for copper, 8¼ cents for zinc, and 6½ cents for lead. Such special quotas will contribute both to equality of treatment as between companies and to maximum production.

In general, all other companies or producers that produced in 1941 will have quotas equal to their average monthly production in 1941 or that part of 1941 during which the company was producing. The entire output of producers that did not produce in excess of certain small minimum amounts, to be announced hereafter, will, however, be regarded as "premium output."

The entire production of any company which did not produce any copper, zinc, or lead in 1941 will be regarded as "premium output" except in few exceptional cases where special quotas will be established.

In the case of any transfer of ownership or leasehold rights of a mine subsequent to Dec. 31, 1941, the government will review the quotas of both buyer and seller.

The Metals Reserve Co. may purchase ores, concentrates, or metals. Whatever the form of the purchases, the intent will be that the producer (and not the custom mill or smelter) shall receive on his over-quota production the entire benefit of the premium prices.

In the event that the emergency terminates before the end of the 2½-year period the Metals Reserve Co. will have the right to discontinue purchases by making an equitable settlement with producers.

All the over-quota output acquired by the Metals Reserve Co. will be used for, or by, the government or will be sold, subject to government allocation, at the regular OPA ceiling prices. All quota production must, of course, be sold by producers at or below OPA ceiling prices. Hence the premium price program to stimulate additional production will not lead to higher prices to the consumer.

Mr. Henderson added further that the considerations which led to an increase in the ceiling price of lead are not present as regards copper. The present ceiling price of 12 cents is adequate for copper with more than 90% of current output being sold profitably at this figure. Special arrangements have been made to insure continuance of current copper output that cannot be profitably produced at 12 cents, notably in the case of high cost Michigan and a few other mines. Inauguration of the premium payments for over-quota copper will not, of course, disturb these special arrangements.


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